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WORLD CONDITIONS IN THE POSTWAR PERIOD THAT WILL AFFECT MISSISSIPPI VALLEY AGRICULTURE*

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Farm Foundation

AS A background for thinking with regard to the foreign relations involved in after-war planning for the agriculture of the Mississippi Valley we should keep in mind the agricultural products we export and the agricultural products we import, and their destinations and sources. You know that the Mississippi Valley is interested primarily in the export of cotton, tobacco, wheat and lard, and that the major imports of agricultural products have been rubber, silk, wool, hides and skins, vegetable fats, sugar and coffee.

The pattern of future world trade will depend on the attitude of the United States toward other nations and upon the economic policies of other nations. Will the pattern of world trade be that of the inter-war period? Will the fear of or hope for another war make the great powers on the Continent of Europe seek agricultural self-sufficiency? Will Italians, for example, feel an insecurity that will make them unwilling to relax their efforts to produce an adequate wheat supply? Will they continue to point to Gibraltar, the Suez, and the Dardanelles and say "Our foreign wheat supply must come through these narrow channels which may be controlled by the enemy in time of war and for this reason we must produce all the wheat we need?" The effort of France, Germany, and Italy to produce their own bread grains resulted in a decline in imports of wheat into these countries until in 1936 the imports were only 44 million bushels compared with 215 million in 1924–1928, or a decline of 171 million bushels. This, with smaller reductions in the demand of other countries, put world wheat imports, for 1936, 238 million bushels below the 1924–1928 average. This subtracted 28.5 percent of the demand for wheat on the world market just at the time when

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

surpluses of wheat were piled high in the wheat exporting countries.

Instead of a postwar movement toward national self-sufficiency in food supplies is there hope that a more efficient international economy will develop in which the densely populated countries of Europe will give first attention to producing the protective foods such as vegetables, fruits, milk, and butter and depend more largely upon the outlying sparsely settled countries of the world for their supply of grain?

But these questions have been based upon the assumption that industrial Europe will continue to find a market for its products in the agricultural countries of the world, and that the industrial countries may depend on food from abroad. Three-fourths of the agricultural exports of the United States have gone to eight countries. In 1935, the United Kingdom took more than a third, with Germany, France, Italy and the Netherlands taking one fifth. Japan taking fourteen percent was the second largest importer of our agricultural products with cotton in the foreground. The ability of Europe and Japan to acquire our agricultural products will have profound influence upon the demand. The European countries have in the past exchanged manufactured goods and colonial goods especially rubber and vegetable fats for the farm products they have brought from the United States. Japan has sent us raw silk. Of the food stuffs and live animals imported by the ten industrial countries of Europe about two thirds went to the United Kingdom, whereas the Continent of Europe took over two thirds of the raw and partly manufactured materials and the United Kingdom less than a third. This means that the United Kingdom is more dependent upon outside sources of food than are the other industrial countries of Europe. British economists have long realized that the United Kingdom is in a precarious position, that the growth of industry in agricultural countries endangered their economic life. Will postwar conditions speed up or retard this movement toward industrialization in agricultural countries? Is it safe to proceed upon the basis of the assumption that western Europe will continue with its former intensity of industrialization?

In recent months I have talked with representatives of many of the Latin American countries and found all of them to be thinking in terms of industrialization of their countries. At a Round Table Conference on Contemporary China at the University of Chicago

in August 1943, the participating Chinese economists were unanimous in their view that China must be industrialized and the agriculture modernized and put more largely on a commercial basis. Will this industrialization of the agricultural nations be brought to pass? If so, how rapidly? The speed depends upon the methods used. If it is left to local private initiative and to domestic capital the development will be slow. If foreign management, skill, and capital are encouraged to participate the growth of industry may be more rapid and if the agricultural nations decide to use the power of the state in financing and otherwise stimulating the growth of industry, the progress may be very rapid as has been demonstrated by Russia.

The United States industrialized rapidly in the half century between the Civil War and World War I. In what measure do conditions such as existed in America from 1865–1914 exist in the Latin American countries and in the Orient? If there is land available, the modernizing of the agriculture may readily take place if the people have the desire, the skill, and the knowledge, and if the governments are stable and beneficent, and if transportation systems and markets are developed.

In parts of Latin America the agriculture has long been on a commercial basis but dependent upon a foreign market and upon foreign industrial products. Here other conditions being favorable, industrialization may progress rapidly. But much of the agriculture of Latin America is of a primitive self-sufficing nature carried on by a people little advanced in the arts and culture of modern civilization. Here the modernizing of agriculture and the industrialization of the economy can progress but slowly—certainly if left to indigenous leadership

In China there are said to be large tracts of land capable of successful and profitable utilization for commercial agriculture which are not fruitful enough to support the self-sufficing economy. Some Chinese economists believe the movement of farmers into these areas simultaneously with a rapid development of industries and the expansion of the industrial population may provide the opportunity for commercializing the agriculture and enlarging the area per farm in the densely populated agricultural areas.

The history of Manchuria throws some light on the possibility of expanding commercial agriculture into areas not suited to the intensive types of the self-sufficing economy. Manchuria was sparsely

populated until railways were put through the country and the commercial side of agriculture was encouraged, then Chinese farmers moved rapidly into Manchuria. The products shipped out—largely soybeans—provided the means of buying the things needed to supplement production for home use. Without these outside products the population could not live by farming solely for home consumption,—the variety of local products was too limited and the climate was too severe. But once commercial farming was made possible by transportation and markets the land could be used intensively with profit.

It was emphasized by the Chinese economists at the Chicago Round Table that the utilization of unoccupied land and the development of industry must move rapidly if it is to relieve the population pressure enough to provide opportunity for the modernizing and commercializing of the agriculture of the densely settled areas. The experience of India and Japan tend to confirm this view.

But why do so many agricultural countries want to industrialize? There are two outstanding reasons. (1) They want higher levels of living. (2) They want to be free from the domination of industrial nations. They recognize that war strength no longer depends primarily upon the numbers of men of fighting age in the nation but very largely upon the ability of a nation to produce specialized war equipment. The industrial nations have the capital and the skills to produce tanks and planes. The agricultural nations are without the means of producing modern war equipment. The leaders of an agricultural nation cannot face these facts without giving thought to the means of insuring national security.

But there is an aspect of this question to be considered other than the added war strength and higher level of living gained by an agricultural nation when it acquires a prorata share of the world's industry. If all agricultural nations become industrialized, industrial nations would have to possess agriculture in proportion to industry. This will mean the decline of industry in those nations which have developed their industrial populations far beyond what their agriculture can provide with food and raw material. This decline of industry will weaken certain dominant nations at the same time that the weaker nations are gaining strength.

Whatever may, in fact, happen in the way of industrializing the agricultural nations and the modernizing of their agriculture it will probably be a slow long-time process. Russia proved an exception and other nations may move as rapidly as Russia in the developing

of their industries and in modernizing their agriculture but in many of the countries education—general and vocational—must precede the other movements. In many areas education will need to create the desire for a different way of life as well as for a commercial economy with its business and industrial skills essential to providing the higher economic level of living.

One of the things the people of the United States will need to decide is whether we as a people are going to be content to limit our industry to a prorata share of world industry. How can the United Kingdom relish this suggestion? What will be the afterwar re-action to the suggestion of the agricultural nations? Limiting each country to a prorata share of the industry of the world does not, of course, mean the production by each country of all industrial requirements and exporting no manufactured products, but it may mean ultimately importing as much manufactured goods as is exported. It assumes that each nation will specialize in the manufacturing of those articles which it can produce to greatest advantage. Likewise it assumes that the agriculture of each nation will specialize on the production of those varieties of products for which it has a comparative advantage.

In considering the attitude of the great powers toward the industrialization of the agricultural nations it should be kept in mind that specific industrial groups will benefit, in the beginning at least. The modern textile mills in India are equipped with machinery of English manufacture. While the textile mills of England were losing their markets the manufacturers of textile machinery were acquiring new markets. Under these conditions national policy arising from business interests may fail to be definite and clear-cut. Things will probably be allowed to drift—for a time at least—and the drift will be toward the industrialization of the agricultural nations.

With a slow but persistent drift toward industrialization of the agricultural nations how will the agriculture of the Mississippi Valley be affected? In the long run will the effects be good? The industrialization of the nations with a self-sufficing agriculture will be a means of inducing higher living standards. This will mean a demand on the part of the people for a much greater variety of food stuffs and clothing materials than is possible under the local self-sufficing economy. This in turn should greatly increase that part of world trade in agricultural products which is based upon climatic differences. The United States exports and imports are based largely upon climatic differences. Cotton, tobacco, lard and fruit,

which constituted seventy-four percent of our total exports of agricultural products in 1937, have their export basis in physiographic factors. Likewise our agricultural imports are based largely upon factors of economic and physical geography. If the cotton manufacturing industry of the world should lose its high concentration in northwestern Europe and become scattered throughout the world, cannot our cotton trade readjust itself accordingly? If the industrial populations decline in northwestern Europe and expand in other parts of the world, will not our exporters of tobacco and lard follow the markets?

It is quite conceivable that the industrialization of the agricultural nations will place the foreign trade of the United States on a more rational basis than it has been. Cereals may be an exception. There is perhaps more than an even chance that the demand for food grains in the world market would decline due to the possibility of each nation producing its own supply. The results here will depend in part upon the expansion of cereal consumption in tropical countries and the development of cereal preferences which will expand the production of some varieties and reduce others.

Commerce in meat and dairy products—particularly between the south temperate zone and northwestern Europe—may greatly decline with the growth of industries in the southern hemisphere and the decline of industry and commerce in northwestern Europe, but since the export of meat and dairy products from the United States are relatively unimportant, this should have little effect upon our long-time plans for agriculture. The corn belt of the United States is the one vast area in the world especially suited to the production of lard. The market for this product will be influenced far more by the competition of vegetable fats than by any shift in industrial populations.

Our imports of wool, hides and skins from the south temperate zone may be affected by the industrialization of that zone.

Hence in planning the future agriculture of the Mississippi Valley the facts of physical geography should receive renewed attention although the facts of population characteristics should not be overlooked, either from the standpoint of quantity or quality.

A matter of primary importance to be considered in our planning is what we are to take in exchange for our exports of cotton, tobacco, lard and fruit. If we make our own silk and rubber which have been two of our greatest imports of agricultural products,

what can we take instead of these in exchange for our exports? If a nation is to be a successful exporter of farm products in a world of balanced distribution of industries, the import balances must be worked out in terms of agricultural products. Will it not pay us to study conditions in foreign countries with a view to encouraging the productions abroad of articles for which we desire to exchange our surpluses?

Certainly planning agriculture to fit the markets is of great importance, but what and where these markets will be is determined in considerable measure by our national policies. Our national policies will in the long run be determined by the comprehension of the people of the character of the benefits of foreign trade. So long as we measure these benefits in terms of the exports rather than in terms of the use value of the goods and service we get in return, our trade policies are likely to be bad. But when our trade policies are planned in terms of the general welfare, instead of the log-rolling interests of pressure groups, there will be hope of rational trade policies

A major undertaking of first importance is the education of our people as to the true nature of international trade and the true character of its benefits.

It will appear that the picture of world agriculture and of world trade in agricultural products in the years and decades following the present war is one about which there is wide range for guessing. But there is one phase of the subject regarding which we may well do some fact-gathering and thinking and that is, what do we want the postwar world to be and what are the motives which lie behind this desire? It is important that agricultural leaders should play a vigorous part in planning international reconstruction.

If we can formulate our desires and translate these desires as they relate to rural and national welfare into a policy which we can effectively advocate, we may wield some influence in determining the postwar pattern. This will take initiative, cooperativeness, intelligence, wisdom, breadth of vision, and moral courage.

It is important that we squarely face the issue of whether we intend to think this matter through in terms of our local self-interests in one crop, in the interest of all the crops of the Mississippi Valley, or in the national interest, and whether or not we are ready to take into account the interests of all the nations of the world.

The danger is that groupism may dominate our thinking and

determine the policies we advocate. This will lead to further conflict. A wise national and international policy which will recognize the general welfare as the goal is the only hope of peace and prosperity.

The motives and ideals of the American people will determine whether or not we are to fall back into a narrow form of nationalism following the present war or enter intelligently and wisely into a system of international cooperation.

In the postwar period, policy-making in its relation to international trade may take the old form of national policies which seek to benefit specific producers of the home land without thought of others, or it may take the form of international agreements which are designed to be mutually beneficial. If we are capable of learning from experience we will certainly avoid the disasters resulting from the efforts in the 1930's to solve international problems by national legislation. On the other hand, bilateral trade agreements are inadequate to the solution of international problems. They too have repercussions which result in difficulty in the other countries. Multilateral agreements which involve all the exporters and importers of a single crop like wheat, sugar, rubber, for example, have fallen short of securing satisfactory results. Agreements of this order have failed to give adequate attention to the fact that the commodity, wheat for example, must be exchanged for other commodities which may be in just as precarious a situation as wheat in the international market. Furthermore, commodity agreements often result in cartels which look to the profits of producers without adequate consideration of the consumers.

An international planning board which will take into account all commodities and all countries involved in world trade and give equal consideration to producers and consumers would seem to be required if a solution to the international trade problems is to be handled intelligently. Such a board would have a colossal task even if it undertook no more than an information and advisory service. If such a board functioned solely as a fact-finding, educational and advisory board, its value would be great. The results would come as individuals, corporations and nations responded intelligently to the information made available. This might be a slow process and would need to be accompanied by some kind of an international police power which would keep the conduct of world trade in harmony with world well-being. But how much of our sovereignty

would we, as a nation, be willing to sacrifice in order to give an international body the power to umpire international trade?

Of course, what we as a people can do depends in a large measure upon what other nations do. But what other nations do, depends in part on the quality of our international statesmanship. Our statesmanship is dependent upon the thinking and the attitudes of our people and especially upon the motivations of the pressure groups. Can we count on the farm leaders, the labor leaders, the industrial leaders, the leaders in commerce and the financeers being willing to subordinate immediate group interest to the broader national and world interests? Will it be possible to show the group leaders that their own interests are best conserved in the long run by promoting the general interest?

My concern for the future rests upon our great need for educational leadership which will adequately clarify the visions of our people for the task which lies before our nation in the postwar period—a period which is fraught with enormous possibilities of catastrophy. We have not shown ourselves to be as able to cope with the problems of intergroup and international cooperation as we are to wage war.

Recent incidents where pressure groups reach in and try to take control of the pronouncements of agricultural colleges may or may not be of great significance. Their significance depends upon the ultimate reactions of men like yourselves. The agricultural scientists of America should this day resolve anew to be free to tell the truth in the interest of all the people and not be told by pressure groups what their findings should be. Our task, however, is not to fight the pressure groups but to educate them. Upon our success in this task depends the quality of the agricultural statesmanship of this country—the statesmanship that should direct our course.

But it is not enough to have a clear vision of what should be done in the general interest. A sense of justice and a will to do right are also essential. In many cases we know what should be done but lack the will. We will have a sick civilization so long as what our leaders believe they have to do in a given situation is in conflict with what they believe they ought to do. The call for help in the educational task is therefore not only for a wise analysis and understanding of economic problems but also for leadership in understanding and following the principles of right personal, intergroup, and international relations as portrayed in the New Testament.

REDIRECTING WORLD AGRICULTURAL PRODUCTION AND TRADE TOWARD BETTER NUTRITION

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DURING the course of the war responsible leaders of the United Nations have made certain declarations with respect to the things we are fighting for and as to the kind of world we want when the peace has been restored. Through the Atlantic Charter, the Mutual Aid Agreements, the President's Four Freedoms, and more recently, the Moscow Agreements and the Cairo and Teheran Declarations, they have pledged themselves and their peoples to a common set of principles and course of action through which they hope to achieve these aims. Now that the war in the European theatre is rapidly approaching a climax, the time is drawing near for the fulfillment of these pledges. How are they to be implemented?

The answer to this question obviously will be the central problem of the postwar period. The solution will encompass the whole gamut of political, social, and economic adjustments and rearrangements that will be required both in the national and international sphere. Numerous groups, committees, and commissions, both national and international, already are actively engaged upon different phases of the many problems involved. In at least two instances[1] international conferences of the entire United and Associated Nations have been held and have developed certain agreed recommendations for joint international action. It is in connection with the objectives and recommendations of these two conferences, which dealt with problems directly related to agriculture, that the present discussion proposes to deal.

The central question with which the first of these conferences was concerned related directly, it will be recalled, to the problem of better human nutrition—to the third of the President's Four Freedoms—Freedom From Want. Its primary task was to survey the situation with respect to Food and Agriculture in different parts of the world, and to ascertain the possibilities and prospects for organizing world agricultural production, distribution, and trade so as to place "adequate food within the reach of all men in all

[1] Reference is here made to the United Nations Conferences on Food and Agriculture and on Relief and Rehabilitation held respectively in Hot Springs, Virginia and Atlantic City, N. J. in May and November of 1943.

lands in the shortest possible time." The second conference, on the other hand dealt with the problem of relief and rehabilitation to victims of war in areas liberated or to be liberated by United Nations Forces.

Although our central purpose is to deal primarily with the objectives of the first of these conferences—with the problem of achieving better nutrition, the problems of the second conference are more immediate and urgent and necessarily will be given priority. But the two are closely related. Obviously, no real progress can be made toward raising the nutrition level of the peoples of the world until they are first rescued from starvation and hunger and started back on the road toward self-support. We, accordingly, shall need to give some consideration to this phase of the problem at the outset.

II

The urgent relief situation we face, of course, is a direct outgrowth of the war which has brought about such profound changes in the usual patterns of production, consumption, and trade in most countries. The initial impact of the war was upon practically all kinds of raw materials, particularly upon metals, chemicals, rubber and fibers and certain of the staple foods. As the war proceeded and peacetime industry gave way or was converted to war purposes, shortages in other directions appeared both in producer and consumer goods. Bottlenecks developed particularly in plant capacity, in machinery and machine tools, in labor, fertilizer, and other materials as well as in internal transport and ocean shipping. These changes forced practically all countries to make sharp readjustments in their internal economies. For those countries completely over-run and subjugated by the Axis Nations, the changes, of course, were the most drastic. These countries cut-off from their usual sources of supply, stripped of their means of production, and pillaged of their reserves will be faced, when finally liberated, with problems of relief and rehabilitation of staggering proportions.

To organize and marshal the resources of all the United and Associated Nations to the amelioration of these conditions was the central problem to which the first meeting of the Council of United Nations on Relief and Rehabilitation Administration addressed itself at Atlantic City.

Faced, on the one hand, with needs of such proportions, and, on

the other, with world-wide shortages not only of the principal foodstuffs but shortages of transport, including shipping, and of means of production, including seeds, fertilizer, insecticides and fungicides, machinery and implements, fuel and oil, feedstuffs, etc., the job confronting UNRRA, the international agency set up to administer the program, is indeed formidable. Its first task, of course, will be to provide food, medical supplies, clothing, soap, and other relief necessities to relieve hunger and starvation, and prevent the spread of disease and pestilence. Having met these immediate elemental needs as well as may be, its next task will be to lay the groundwork for rehabilitation, whereby these destitute peoples may again become self-supporting.

The Council Meeting developed and recommended policies that should be followed in raising essential food for relief and in rehabilitating agriculture in the liberated countries. Recognizing from the outset, in view of the world-wide shortages of foodstuffs and of shipping, that the relief needs of the liberated countries could not be met wholly by imported products alone, the Meeting decided, first of all, that steps should be taken at once "to obtain from the soil of the occupied countries and from sea fisheries including whaling the maximum of food in the shortest possible time."[2] The most effective way to do this, they agreed, was to encourage the production of those products which would result in the largest amount of nutrients per unit of resources used.

They proposed accordingly:

1. That for the first crop year after liberation an absolute priority in liberated countries be given to the production of food for direct human consumption.
2. That specific attention be devoted to the production of those vegetables and pulses which have a high protein or vitamin content; particularly that potatoes and their use for human consumption be increased to the maximum; and that a high priority be given to imports of seed potatoes and to seeds of other vegetables such as cabbage, savoys, swedes, turnips and carrots.
3. That assistance be given by UNRRA to the restoration of necessary processing facilities in order to utilize to the greatest advantage the foodstuffs that are home-produced and im-

[2] See report on Policies Relating to Agricultural Rehabilitation and Other Means of Raising Food Essential to Relief.

ported; also that milling ratios in the liberated areas be maintained at high levels; e.g., wheat at 85 percent, in order to obtain the maximum food value from bread grains.

4. That immediate steps be taken to insure the early expansion of fishing and the whaling industry to assist in meeting the shortages of animal proteins, fats, and vitamins.
5. That prompt action to the same end be taken to prevent the further depletion of dairy herds—but that the restoration of such expensive forms of animal husbandry as swine and poultry production be delayed.
6. That pending the time when the supply and import situation is better, the importation and use of feeding stuffs for milk production be given priority over the importation and use of feeding stuffs for other livestock; but imports even for milk production should receive, in principle, secondary consideration to imports of food for direct human consumption; also having regard to the importance of milling offals as a feed, the importation of grain should have priority over the importation of flour; and that, similarly, the importation of vegetable oil seeds should have priority over the manufactured products.

In addition to the foregoing, which relate primarily to the pattern of production that will be needed in liberated countries and the timing and priority of operations, the conference also made certain recommendations with respect to ways and means of facilitating and increasing the efficiency of production and to procedures for putting the recommended policies into operation.

With respect to the former, it was pointed out that in most liberated areas the rehabilitation problem will require the advance by UNRRA of seeds, veterinary supplies, pesticides, fuel and lubricants, feeding stuffs, fertilizers, containers and processing equipment to enable production to get under way. Boats, repair materials, nets, and other fishing gear also will have to be provided for certain maritime countries to permit an expansion in fishing and whaling.

In the worst devastated areas special additional effort will be necessary to re-equip farms with motive power; i.e., draft animals or tractors; to restore fertility to the soil; and to re-establish essential livestock especially for milk production. Assistance also will need to be given in the re-establishment of credit, marketing, and other service organizations in different countries as well as to the recruitment of agricultural workers since shortage of labor will

prove a serious handicap to production in a number of countries.

As a basis for planning and implementing these recommended policies in the different liberated countries the Council suggested:

1. That, first of all, estimates of requirements for agricultural rehabilitation be submitted by the different national governments to the international agency (UNRRA).
2. That these estimates of requirements be based on technical surveys which should be undertaken in each area immediately after liberation; such surveys to be under the immediate supervision of the respective national governments with the technical assistance of UNRRA, if necessary, but be collated by UNRRA to insure that comparable bases and procedures are used.
3. That on the basis of these national surveys, and as soon as possible after liberation, national production programs be developed by the respective national governments showing the acreages that will be put into the various crops and the output expected to be achieved both from agricultural and fishery production; and that estimates of requirements for agricultural supplies to be furnished by UNRRA be based upon these production plans.
4. That on the basis of these national production plans UNRRA in collaboration with the respective national authorities develop a realistic list of requirements which it will undertake to furnish; and finally,
5. In order to facilitate this procedure and to insure that the numerous technical problems be properly and effectively handled, that a Standing Technical Committee on Agriculture with regional sub-committees be established and organized as soon as possible; also that insofar as technical assistance may be needed by the different national authorities UNRRA should undertake to supply such personnel.

These recommended policies and procedures for meeting the immediate problems of relief and rehabilitation of the liberated countries appear to be entirely realistic and practicable and to be in line with the exigencies of the world situation. Recognizing the world-wide shortage of foodstuffs, in shipping, and of the means of production they correctly recommended that relief be kept to a minimum basis and that agricultural rehabilitation center upon those steps that will most effectively result immediately in the

maximum output of those products most essential to meet the elemental needs of the peoples concerned. They also rightfully stressed the need for continuing, and even increasing, those lines of production which provide food for direct human consumption even though this might not result in a pattern of production that is most economically desirable from the long-time point of view. Modifications of these patterns of production, it was pointed out, could be undertaken when starvation and actual hunger have been overcome.

But they were not unmindful of the longer-time problems of permanent agricultural reconstruction and reorientation. On the contrary, they deemed it of "the utmost importance that UNRRA take every necessary measure to secure the closest association between its own work and the activities of the United Nations Food and Agriculture Organization so as not to hamper but to assist, insofar as possible, toward the achievement of the objectives of that agency."

The suggested procedures for planning and conducting the program were equally realistic. By basing import requirements for seeds, pesticides, machinery and equipment, fuel and lubricants, fertilizers, etc., upon carefully worked out production plans in each country which, in turn, are to be developed in the light of the needs and immediate possibilities and potentialities of each area, they economize upon and assure the most effective use of such materials. This procedure also affords a basis for coordinating the programs in one country with those of other countries so as to insure not only the most effective use of resources but of the foodstuffs resulting from such production; i.e., to use anticipated surpluses that may result in one area to remedy the deficiencies of another area.

These suggested procedures for planning and coordinating the program have a great deal of interest and pertinence, as we shall see, to the latter part of this discussion where a closely analogous procedure is proposed for coordinating the efforts of the several nations in redirecting production and trade toward the achievement of the longer-time goal of better nutrition.

III

This brings us forward to the central problem of our discussion—to the problem of achieving the long-time objective of freedom from want of food.

The delegates of the 40 odd nations in attendance at the Hot

Springs Conference, where this problem was considered, after three weeks of deliberation unanimously declared it their belief, "that the goal of freedom from want of food, suitable and adequate for all peoples can be achieved . . . that the primary responsibility for doing so lies with each nation . . . but each nation can fully achieve its goal only if all work together." "There has never been enough food," they declared further, "for the health of all people—a fact that is justified neither by ignorance nor by the harshness of nature —that production of food must be greatly expanded—and we now have the knowledge of the means by which this can be done." "But it is useless," they asserted further, "to produce more food unless men and nations provide the markets to absorb it." Accordingly, "There must be an expansion of the whole world economy to provide the purchasing power sufficient to maintain an adequate diet for all. With full employment in all countries, enlarged industrial production, the absence of exploitation, an increasing flow of trade within and between countries, an orderly management of domestic and international investment and currencies, and sustained internal and international economic equilibrium, the food which is produced can be made available for all people." . . . "But the first steps toward freedom from want of food must not wait the final solution of all other problems . . . the governments and authorities represented at the conference accordingly should recognize and embody in a formal declaration or agreement the obligation to their respective peoples and to one another henceforth to collaborate in raising levels of nutrition and standards of living of their peoples and to report to one another on the progress achieved." . . . and in order that every practicable step may be taken to achieve these objectives, "that a permanent organization be established in the field of food and agriculture."

The foregoing excerpts taken from the Declaration, set forth in broad outline the conclusions of the Hot Springs Conference. These were supplemented and buttressed by a number of additional recommendations and resolutions relating to specific phases of the problem.

It is not our purpose to enter into a detailed discussion of these specific recommendations and resolutions; nor to discuss the fundamental adjustments in the way of world-wide enlarged production and trade, maintenance of employment and purchasing power, etc., that will be needed if the ends sought are to be achieved. We pro-

pose rather to center attention upon "ways and means by which the several nations may collaborate in raising levels of nutrition and standards of living of their peoples and report to one another on the progress achieved."

The center of emphasis, hence, will be upon implementation—upon the respective roles the projected Food and Agriculture Organization (which if governments approve is soon to be set up) and the several member states may play in carrying out the agreed recommendations of the Hot Springs Conference. This really is the central problem with which the Interim Commission has been struggling since its establishment in July 1943.

How far the international agency can go in collaborating with the member states in raising nutrition levels, obviously, will depend upon how broad its powers are conceived to be and the scope of the duties and functions which the member governments are willing to assign to it. In addition to the specific mandate—to promote research (scientific, technological, social, and economic), collect and disseminate information, and provide for the exchange of services—the instructions of the Conference to the Interim Commission list eight subjects[3] upon which that body may submit to the member governments and authorities recommendations for action and five other subjects[4] upon which the Interim Commission may consider it desirable to assign functions to the permanent organization. A careful reading of these instructions does not disclose any desire of the delegates to restrict or limit the functions of the international agency or any fear that the sovereignty of the participating nations would be unduly limited by working together to achieve the ends sought. On the contrary, there is throughout the pages of the Final Act a great deal of evidence to support the view that they recognized the need for a strong international agency to further the aims and to carry through the recommendations of the Conference.

The Interim Commission has been endeavoring to come to closer grips and "spell out" the functions and duties of that agency in

[3] Nutrition; standards of consumption for food and other agricultural products; agricultural production, distribution and conservation; statistics and economic studies in the field of agriculture and food including the study of the relation of agriculture to world economy; education and extension work in the field of food and agriculture; agricultural credit and problems of agricultural population and farm labor.

[4] Development of agricultural resources and reorientation of production where necessary; agricultural commodity agreements; agricultural cooperative movements; land tenure; and other subjects upon which recommendations have been made by the Conference.

much greater detail and definiteness than did the Conference itself. Throughout the Final Act, both in the Declaration and in the resolutions and recommendations repeatedly appear such words and phrases as "advise," "promote," "facilitate," "collaborate," "recommend for action," etc., that will need to be clearly defined so there will be no misunderstanding as to their meaning or as to what specific action is to be taken by the international agency when it performs one of these functions.

To take an example, what does the term "recommend for action" mean? Does it mean that the international agency merely should draw up a list of problems in each of these fields that need attention and recommend to the member governments that they take action on them without indicating too definitely the type of action that should be taken? Or does it contemplate that the international agency, either working alone or in cooperation with the member states, would work out the type of action needed in detail and submit the resulting proposal to the member governments for putting it into effect? Or does it have some other meaning? Similarly with respect to the other words and phrases.

This "spelling out" of the respective roles which the international agency and the member states are to play, obviously, is quite important. The crucial issue revolves around the question not only as to what action is to be taken but *who* is to do *what*. Shall this agency be merely a research and fact-finding body set up to assist, only when requested, the several governments, or shall it assume active leadership in the development and promotion of policies and programs that will effectively contribute to raising the nutrition levels of the peoples of the world?

If it is to occupy the former role, it likely will become simply another international organization respected and loved by those it assists but probably not contributing a great deal toward, nor greatly influencing, the course of events with respect to the actual raising of the levels of nutrition. If, on the other hand, it assumes the latter role there is at least some promise that positive and effective action will be taken by member nations individually or in concert in achieving the ends sought.

While presumably any agreement upon the part of participating nations to undertake joint international action with respect to any problem is a limitation upon their independence and hence technically a limitation upon sovereignty—it does not follow, of course,

that this is bad or against the interests of their peoples. On the contrary, the presumption is just the other way around. It would be logical to assume, at any rate, that the participating nations would feel that their national interests are more likely to be served than thwarted by such action, otherwise they would not engage in such an undertaking. Regardless of this, however, the "passion for sovereign independence" still abounds and can not be brushed aside so easily, even though its most zealous protagonists sometimes appear to be those who least desire to see action taken.

Possibly the easiest way to meet this sovereignty issue, as The Economist[5] suggests, is "to seek agreement between nations in relation to a specific problem and not to a particular transfer of power. Power falls into its proper perspective when it is seen, not as an end in itself or as a jealous possession, but simply as a means to accomplish a desirable end. Sovereignty is sacrificed without any consciousness of sacrifice, for while absolute control is diminished, possibilities for positive action are greatly enlarged."

This proposed method of concentrating on particular problems is called by The Economist the functional approach to international collaboration. This type of collaboration, as they point out, has proved very effective in the conduct of the war as attested by the success of the Lend-Lease agreements, the various raw materials controls, the joint shipping arrangements, etc. This same functional approach now is to be used by UNRRA in providing relief to war torn countries and in assisting them in rehabilitation. That international collaboration of an analogous character might prove equally effective in operating a program which has as its principal objective the raising of the nutrition levels of the peoples of the world, seems highly probable. In fact, the nature of the action that will be needed is such as to lend itself almost ideally to such a problem approach. It seems highly important that this be recognized by the several member governments when agreeing upon the final procedure for international action in this field.

Under such an arrangement the international body could be assigned such powers and duties as may be needed to assure its effective functioning upon the problems upon which it will be engaged, and, at the same time, not unduly interfere with the sovereign independence of the participating states. Such powers as

[5] See An International Example—The Economist, 4th of September, 1943 (Centenary issue).

it would be assigned might, and probably would, vary according to the particular problem, but would be directed toward the achievement of particular ends and not be exercised otherwise.

Under such an arrangement also the international agency would not have to be a "directing agency" in the sense that it would dictate to the member states and tell them what to do and when. Its function rather could be more that of a facilitating and coordinating agency to assure that the concerted action was purposeful and effective in achieving the ends sought. It could, as it were, sit at the head of the table and assume leadership in developing and reaching agreement upon the type of action needed, assist the several nations individually and in concert in working out the plans for each action, but usually leave the execution of the action to the member states themselves, when it involved matters exclusively within the jurisdiction of the participating nations. If the problem called for joint action on the part of all or a portion of the member states, such could be handled with the consent of the member states, either by the international agency itself or by some subsidiary body which could be set up for the purpose.

Assuming that the international agency might be assigned the necessary powers to function in this manner, how would it perform its task in actual operation? Specifically what steps and procedures would it take in collaborating with the several member states in raising the levels of nutrition of the peoples of the world?

IV

To make clear the nature of the task that the international agency will need to perform with respect to this whole field, we shall need to outline, first, the essential nature of the problems with which it will have to deal. Since the central objective of the whole effort is to raise the levels of nutrition of the peoples of the world, the first problem that will confront the international agency and each of the cooperating member states is to determine the consumption needs of the several nations and the minimum levels of nutrition at which they will undertake to maintain their peoples.

This will involve not only a careful survey and analysis of existing levels of consumption in the different countries but a determination of what is good consumption, and practicable goals toward which to work. This will show the shifts in diets that will be necessary in the different countries to reach these levels or goals. In answering these questions it will not be sufficient merely to deter-

mine national averages for all age, occupational and income groups. These must be broken down and shown both by areas and by specific groups. The levels of consumption needs and the goals of nutrition that are finally set up, obviously, will have to be developed with due regard to the cultural background and economic position of the peoples concerned. Inasmuch as both of these vary quite widely, country by country—the resulting goals will vary in a similar manner—hence, each nation in a sense will become a special problem.

It will be the task of the nutritionists, as Dr. Black points out, to determine "what intakes of the various food elements are required for given levels of health and activity . . . but when the decision has been made as to these levels to be set up as goals, there still remains a wide range of possibilities as to foods by which these can be provided. They can be supplied in cheap foods like whole wheat, rice, corn, soybeans, potatoes, cabbage and carrots, with such animal proteins as needed from whole milk or fish or a little meat; or at the other extreme, the diet can include larger amounts of meat and butterfat, and a large assortment of year-round fresh vegetables and fruits. The diets can take the fullest possible advantage of possibilities of producing needed supplies of protective foods on the home farms or plantations or in the home community; or it can rely upon purchases of much of these elsewhere." Answers to questions of this character fall within the field of the social scientists and it will be largely their task in cooperation with the food technologists and others to make these determinations.

Having ascertained the consumption needs and the shifts in diets that will be needed to reach a desired nutrition level in the different countries, the international agency and each of the member states next will be confronted with the problems of production. The first task will be to translate the consumption needs and minimum levels or goals of consumption agreed upon in the different countries into production terms. The next step will involve an analysis of the possibilities for expanding and reorienting production in each country to see to what extent the deficits in an individual country can be met by this means and the extent to which countries favorably situated to produce low cost foods of high nutritive content can supply additional quantities of these to the peoples of other countries and thereby contribute to the betterment of nutrition and world trade.

Such an analysis should begin with a careful examination and inventory of the available agricultural resources, the extent to which they are currently utilized or are idle and their physical condition. It would cover basic land resources, the prevailing crop and livestock patterns, machinery equipment and tools, livestock and materials, as well as prevailing methods and techniques used in production, including availability and cost of credit, tenure and other institutional arrangements, research and educational programs affecting production. It would consider next the possibilities for expanding output by increasing the productivity of land now in cultivation through the introduction of better rotations and crops sequences, the use of more and better fertilizer, particularly phosphate and lime, and other suitable soil and conservation practices; the possibilities for increasing the efficiency of production, by the introduction of better farming methods, suitable modern equipment, improved varieties of crops and strains of livestock, better feeding and other practices, changes in the tenure and credit systems, and improvement in the research and educational programs; and the possibilities of bringing more land into cultivation through clearing, drainage or irrigation giving due regard to the need for, and the economic feasibility of such developments.

There should follow this analysis of production possibilities an analysis of the trade position of the different countries to determine the possibility of balancing the deficits in one or several countries against the surpluses existing in other countries taking into consideration not only agricultural products, but also all goods and services. From this and the previous analysis there would be obtained the basic pattern of international trade in food products.

The final step in this phase of the problem, would consist of working out recommended crop and livestock systems and the methods and techniques of production in the different countries which would most effectively contribute to these ends. It also would involve devising effective measures, both those to be taken by the member governments alone and those which require joint action on the part of some or all of them, for putting them into effect, giving due attention to the variation in relations of governments to peoples in different parts of the world.

The third broad problem with which the international agency and the cooperating member states will have to deal falls in the field of marketing and distribution. Obviously, in raising the levels of nutrition of the peoples of the world it is not sufficient simply

to determine the gaps in the consumption needs and to reorient and redirect the agricultural production to meet these needs. There remains the broad and difficult problem of processing, transporting, and getting into the stomachs of the peoples of the world both the quantities and qualities of food that are essential to the achievement of the goal of good nutrition. This, in many ways, is the most difficult of the problems with which the international agency and the cooperating member states will be confronted.

It presupposes the carrying through of a long list of fundamental overall adjustments in the economies of each nation that will be necessary to keep industrial and other production on an expanding basis, to maintain employment and purchasing power, to permit the freer flow of trade within and between countries, to minimize exploitation, and other ends. But in addition to these adjustments, which obviously are matters outside and beyond the scope and jurisdiction of an international body set up to deal exclusively with problems relating particularly to food and agriculture, there are other specific problems which do come within the scope of the activities of such an agency.

These problems have to do with the development of a broad program to improve the marketing and distribution of food. They include the problems of improvement in marketing services; the development of marketing facilities; the reduction in marketing costs; and above all, special measures for the wider distribution of foods. Interest, insofar as this discussion is concerned, centers primarily upon how the international agency may assist in the formulation and initiation of programs that will facilitate the interchange between countries of foods and feeds, especially those which may from time to time be in surplus supply.

V

With this general picture of the nature and types of problems with which the international agency and the cooperating member states will have to deal, let us now consider the particular role which such an agency should or might play in collaborating with the several member states in raising the levels of nutrition of the peoples of the world.

Let us begin by considering what should be its function in determining and recommending the consumption needs and the production adjustments that will be required to meet these needs.

1. First of all the international agency, as the official body repre-

senting the member states, should assume active leadership in the promotion and carrying through of such analyses and surveys, that are necessary for such determinations and recommendations.

2. It should outline in detail the nature of the analyses that are needed, the procedures to be followed and the form and content of the reports to be made in order that the adequacy of the analyses and the comparability of the results be assured.
3. It should be so staffed and financed as to be in a position at all times to collaborate promptly and generously with the officials and technicians of the several nations signifying their desire to participate in such a program whether that collaboration be with a single nation, a group of nations, or all nations in concert. Should its own permanent staff be inadequate to carry out such collaboration simultaneously in the several countries, it should recruit temporary staffs or appoint commissions from among competent technicians available in the different countries of the world.
4. It should keep in touch continuously with surveys and analyses under way in the different nations to see that they are being properly conducted, that the findings and recommendations are reliable and pertinent, and that the resulting data will "add up" when completed.
5. Upon the completion of a survey the international body in collaboration with the member governments should seek the adoption of the recommendations of the survey by the appropriate government agencies of the country or countries involved and assist in devising practical means by which these recommendations can be put into effect.

With respect to the problems of production, there are three broad types of production adjustments to which the international agency and cooperating member states will need to direct primary attention and to be in a position to make specific recommendations regarding the practical means by which they may be brought about. These include: (1) increasing productivity and efficiency, (2) expanding the area in cultivation, and (3) balancing production with needs. The first two types of adjustments are necessary for achieving the expansion in total output that will be needed. The third type of adjustment, on the other hand, is central in the problem of reorienting and redirecting production to assure that the products

needed are produced in the amounts and proportions required for balanced nutrition, taking exports and imports into account.

The nature of the implementing measures for bringing about these needed adjustments naturally will vary country by country, depending upon the extent and character of the adjustments required, the state of the arts or the level of technological progress that has been reached, as well as upon the cultural background and economic position of the peoples in the different countries concerned. The procedures for putting the needed measures into effect also will vary depending upon the economic and political organization prevailing in the different countries and upon the institutional arrangements governing the relation of government to the citizen.

With due recognition to these varying situations the international agency should be in a position to assist, upon request, the governments of any member nation to increase the productivity of its lands and its efficiency of production:

1. By promoting and giving financial support, either through supplying the services of competent technicians directly from its own staff, by the appointment and financing of special commissions, or through grants-in-aid to established experiment stations, to expand research in such fields as plant breeding, soil conservation and soil management, the use of fertilizer, insect and disease control, and livestock breeding and feeding with the view of developing new or improved varieties of crops and strains of livestock, and better soil, conservation and management practices.
2. By developing in cooperation with appropriate agencies within the country and, if necessary, with other interested government or international institutions, effective arrangements for supplying producers with adequate credit at low cost for obtaining necessary machinery and equipment, fertilizer, fungicides, insecticides and other materials; as well as credit for other purposes.
3. By assisting responsible administrative and legislative officials to determine changes in existing systems of land tenure that are necessary or desirable to promote the productivity and efficiency of agriculture and by helping to get public acceptance of these changes as rapidly as legal and other institutional obstacles will permit.
4. By collaborating with responsible officials in developing a

program of education and demonstration for helping producers to understand and put into practice better methods and techniques of production.

5. By working with appropriate agencies within the country in developing programs and procedures for *direct* assistance to individual producers in working out crop and livestock systems, conservation and cultural practices that will lead to increased productivity and efficiency. This may involve supervised credit, direct grants of materials, non-recourse loans or other forms of government assistance.

With respect to expanding the area in cultivation, the international agency should be in a position:

1. To assist, upon request, any individual country or group of countries by providing the services of competent technicians either from its own staff or on special commissions set up for the purpose, to survey, appraise the surveys of other agencies, or in some cases, with the consent of the countries involved make surveys itself of new land in different parts of the world that can be economically developed and brought into cultivation through clearing, drainage or irrigation.
2. To assist in preparing on the basis of the findings of such surveys, programs of development and settlement applicable to the economic and social conditions of the country or countries involved, adjusted to and geared in with, the nutrition and trade pattern of the world at large. Such programs should cover the systems of cropping and livestock production to be followed, the size of units to be set up, the transportation, marketing and community facilities to be developed, the methods and procedure for selecting settlers and for assisting them with the difficult, technical, financial and managerial problems they will face.
3. To assist in the implementation of such programs by developing, in cooperation with appropriate agencies within the countries directly concerned, or if necessary, with other interested governments and international agencies and institutions, effective arrangements for obtaining the necessary capital and credit for adequately financing such projects; the services of competent engineers (agricultural, irrigation, transportation, hydraulic and industrial) for planning and developing them;

and the machinery, equipment and materials needed in construction.

In addition to increasing productivity and efficiency and expanding the area in cultivation, obtaining the better nutrition objective also will require changes in the proportions of the products making up the total volume of production as well as balancing this production against needs. Effective implementation of these needed changes will involve not only the planning and working out of the adjustments in the crop and livestock systems which will make the maximum contribution to the improvement of diets within a given country but the gearing in of these adjustments with those of other countries to assure a world-wide coordinated production program which can make the most effective contribution to the nutrition of all countries. This, of course, assumes the nations will be willing to exchange their surpluses with one another and, if need be, set up international machinery to insure that international trade, not only in food and other agricultural products but in other commodities as well, is carried on in an orderly way.

With due recognition of the complexity of the problem, the nature of the statistical data and technical personnel that will be needed, and the availability and varying character of these in the different countries—the international agency should work initially with single countries and as rapidly thereafter with groups of countries and with all nations in concert, as the requisite data can be obtained or improved and the necessary organization and procedures can be worked out.

Specifically, in order to balance production with needs effectively, the international agency should be ready, upon request, to furnish qualified personnel to any country to assist in:

1. Determining current levels of consumption
2. Setting up consumption goals
3. Determining the supplies currently available for consumption and the extent to which they must be changed, whether through changes in domestic production or changes in international trade, to meet the consumption goals and
4. Working out programs to bring about the needed changes.

If and when a group of countries had begun programs of this character the international agency should work with each country in relating its program to those of the other countries: (a) to deter-

mine the possibilities for increasing the exchange of the products most efficiently produced in one country with those produced in other countries with the view of improving the economic position of the different countries and of raising the level of food consumption in all of them, and (b) to develop, or assist in developing, procedures by which the group of countries can work together in coordinating their production, trade and consumption programs.

An important step in this coordinating process would involve the obligation on the part of each nation to make periodic appraisals of its situation, and report the results of these appraisals to the international body. That agency, in turn, would summarize and correlate the reports of the several nations and report back to each of them suggested modifications in their production and trade plans that would meet the nutrition goal more effectively and that would balance production with effective demand. The international agency should encourage all nations to begin to work together in this manner as soon as possible.

VI

Implementation of the production and trade adjustments that would be required in such a balancing process obviously would call for rather specific international arrangements between the different countries. Such arrangements should encompass all lines of production, should be under the control and direction of the cooperating governments and should be directed toward expanding rather than contracting *total* production. They should provide for both producer and consumer interests; should include the major producing and consuming countries and should be complementary to other national and international measures for reorienting production as contemplated in the procedure discussed above for keeping production in line with needs. Such arrangements thus would not be specific ends in themselves but would be incidental means in a much larger process for achieving a better utilization of resources on a world scale. By encouraging the production and exchange of products most efficiently produced in one country with those produced in other countries, such arrangements would tend automatically to prevent the accumulation of surpluses of particular commodities and to hold their prices in line.

Such arrangements specifically might include agreement upon the part of each of the participating countries with respect to

what products it would expand or contract; what measures it would take to achieve these changes; what products it would want to import; what products to produce for export at the going international trade price and at lower prices, as well as in what amounts; what products (agricultural or industrial, including services) it would take in exchange for its exports; the level at which stocks would be held; prices to be received and paid; and related matters.

Since a great deal of time necessarily would be required to negotiate agreements of such broad scope, it would be necessary in the interest of expediting action to begin on a much more modest scale, possibly with single commodities and gradually expand until all major products are included. Initially, in fact, the agreements between countries could be confined simply to how much of each commodity each country will import and/or export, and on what terms. This would assure friendly interchange of products between countries, prevent indiscriminate dumping, and tend to stabilize prices in the international market.

With an agreed-upon set of import and export "quotas" for the different countries it would be possible, furthermore, for the international agency in cooperation with each member state to develop a realistic set of production goals that would make the greatest contribution to the achievement of the nutrition objective and at the same time keep production in line with effective demand. Theoretically, the consumption goals (by commodities discussed above) plus agreed-upon exports or minus agreed-upon imports should (after adjusting for carryover, security stocks, etc.) be the production goals for the respective countries.

But in balancing supplies with needs (considered both in the nutrition and effective demand sense) it must be recognized that the situation will vary quite widely as between countries. Certain countries, pending reorganization of their agriculture and development of industry, will be unable to produce internally or acquire from abroad, through the usual channels of trade, adequate amounts of food to meet the needs of their peoples. Some countries, on the other hand, may be confronted with accumulated surpluses.

To meet such situations it was agreed at Hot Springs that "serious attention should be given to the problem of developing a cooperative international program for making food supplies available to those people and those countries which are in greatest need of them." This probably can best be accomplished through some sort

of international pooling arrangement whereby a part of current world food supplies could be used to supplement the national food distribution programs of certain countries. By agreement of the cooperating nations, arrangements could be made whereby products moving in the usual channels of trade would be disposed of at the going international trade prices and only that portion of it that is in surplus or that is going into a special pool for supplementary feeding of underfed peoples in certain countries would be disposed of at a lower price.

Such an arrangement would fit into and could be provided for in the adjustment and balancing process discussed above. It would permit production to continue on an expansionist basis and furthermore would encourage expansion in the most efficient producing areas. This is a matter of great significance since it would provide a means for getting around one of the most troublesome problems of the common type of international commodity agreement. It would also meet most of the usual objections to dumping.

Provision would have to be made, of course, for setting up the necessary additional operating machinery and administrative arrangements for handling the products in surplus and for facilitating the exchange of products within and between countries. The international agency itself might well take the leadership in formulating and reaching agreement with the cooperating member states on the plan of action to be followed but the member states probably would wish to set up an independent corporation or administrative agency to perform this task. A single agency to handle (or supervise) all intergovernmental arrangements for international exchange of *all* commodities (non-agricultural as well as agricultural) is to be desired.

With this brief sketch of the international arrangements that will be needed we conclude the discussion. Obviously we cannot expect collaboration of the type we have discussed to come about too quickly. Much fact-finding, research, education, negotiation, etc. will be necessary. Years, in fact, will be required for some nations to get ready to collaborate with others on the high plane here suggested. But a start can be made immediately, for it is certain that some of the United Nations are now ready. Just as soon as the war is over many of them undoubtedly could move very rapidly in this direction. The transition, in fact, would not be too abrupt since the type of collaboration proposed would be a logical outgrowth of UNRRA's activities.

REHABILITATION OF AGRICULTURE IN GERMAN-OCCUPIED EUROPE*

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THE war in Europe is now in its fifth year. Although we think we can see the approaching of the end, it may well be that another growing season will go by under war-time conditions. The disturbances in transport and trade, which necessarily must accompany the enormous undertaking of the re-conquest, will most likely extend well into the planting seasons, fall this year and spring next year, for the 1945 crop. What has happened to farm production during these war years? How great are the reductions in output and the resulting food shortages? And, when the roar of the guns and the bombs again comes to a stop, what then is the outlook for the restoration of agricultural production in that large territory which includes the most productive lands of Central and Western Europe? In order to answer these questions, it is necessary to consider briefly a few of the most outstanding features of European agriculture and the effect of the war upon production.

Some Important Features

It is well to keep in mind that German-occupied Europe in pre-war years was not greatly dependent upon outside food supplies. Only nine to ten percent of its food supplies was obtained from outside sources, either directly in the form of bread grains, meats and fats, or indirectly in the form of concentrated feed stuffs, oil seeds and marine oils. This is the fundamental reason why it has been possible, by reducing consumers to a diet containing more direct consumption crops and less livestock products, to provide food for the hundreds of millions under German domination without disastrous results, except in a few regions. However, it must be kept in mind that the statisticians' averages cover some very cruel situations in areas that normally were deficit areas and that disruptions of the transport system in German-occupied Europe, now becoming worse from month to month, are making the situation more severe in such deficit areas as Norway, Belgium, Greece and even the food-importing areas of France. That great agricultural country has been forced to become a food exporter. The Nazis are, of course,

* The views and opinions expressed by the author are his own. They do not reflect any Bureau or Department viewpoint on the problems considered.

drawing upon all the occupied countries for food by the modern method of "purchasing" freely in the markets with money requisitioned for that purpose from the different national banks, without necessarily giving anything in return, thus solving the problem of one-way trade.

In spite of the fact that German-occupied Europe was so nearly self-sufficing, the war has, nevertheless, created considerable disturbances in food production, because agriculture in a large part of the territory is very intensive. The fertility level of the soils is high, the man-made part of the fertility counting for more than the natural fertility. And the high level can be maintained only by the use of large quantities of manure and fertilizers. Yields are high—in Northwestern Europe several times as high as in the United States. When imports of oil seeds, oil-seed cake and bread grains, which, through their processing, yield large quantities of mill feed and also the raw materials for the manufacture of phosphate fertilizers, are cut off, the last channels of imports being cut off with the invasion of Russia and the subsequent allied occupation of North Africa, there is unavoidably some decline in yields. Cereal production can not be fully maintained and, with the diversion of a larger part of the cereals to human food, less concentrate feeds are available and livestock numbers must be reduced. The reduction in feed supplies, especially in concentrates, forces some reduction in dairy herds and a great reduction in the numbers of grain-consuming livestock, especially hogs and poultry. These are the outstanding developments in European agriculture. They tell us much about the present food situation and they indicate what lines restoration of production must take.

Effects of the War

Total crop production has probably been reduced by about ten percent, but there has been a much heavier reduction in bread grains, probably as much as twenty percent, and much less in feed crops, especially roughage crops.

The Nazis have not had much success in accomplishing any large-scale campaign of plowing up hay and pasture lands even in Northwestern Europe where such a measure would contribute significantly to food production. As a matter of fact, the arable acreage has actually been reduced, mostly because of the reduction of crop land in France, which makes up such an important part of

German-occupied Europe. This extensification probably is connected with the retention in Germany of about one million war prisoners.

In addition, there has been a decline in yields, although it must be said that this decline has been partially due to unfavorable weather. The winters of 1940–1941 and 1941–1942 in much of occupied Europe were the severest seasons on record. Enormous areas of wheat, rye and oilseeds were winter-killed and had to be resown with spring grains.

But the really serious declines in output have occurred in livestock production. The reduction in cattle numbers is probably of the order of twelve to fifteen percent while hog numbers have been reduced some thirty to forty percent and poultry still more. These figures are average figures and in some areas, especially commercialized areas partly dependent upon imported feed, reductions have been greater. The reduction in output of livestock production, however, is still greater than indicated by the decline in livestock numbers, because the reduction in imports and production of grains has had to be absorbed entirely by the quantities available for feed. Requirements for human consumption naturally have to be met in spite of the decline in total production.

Besides, the general shortage of concentrates, especially of protein feeds, makes it necessary to feed the livestock unbalanced rations, which reduces the effectiveness of the quantities of feed actually supplied. Probably the reduction in livestock products is of the order of twenty-five to thirty percent, again with heavier declines in the specialized commercial areas which normally acquire imports of certain feeds to supplement home-grown supplies. This decline in output of livestock products was fairly rapid during the first two years of the war, especially after commercial stocks disappeared and the last gaps in the blockade, Russia and North Africa, were closed. Since then, there has been a slow, creeping decline which, however, in some areas has been halted, at least temporarily, already in 1942 and more generally after the large 1943 crop has come into use.

It is possible to pay too much attention to the technical factors, such as acreage, yield and lack of certain supplies needed for production. The manipulation of prices on the part of the Nazis should not be forgotten. A definite policy of high prices for farm products has been followed. Agricultural prices have been increased substan-

tially, far above the level of other prices, in order to stimulate production and cut down consumption in occupied countries, thus making it easier to draw off supplies from the markets. The paying is done by the occupied peoples themselves anyway. No doubt the high prices for farm produce have stimulated production and encouraged the farmers to ship their produce to markets. The effect may be wearing thin as the shortage of protein feeds, phosphate fertilizers and farm machinery, insecticides and fungicides has made itself more severely felt. Price differentials have also been employed to encourage production and sale of crops for direct consumption, such as grain, potatoes and sugar beets, rather than livestock products, thus counteracting the lure of the high black-market prices for livestock products. But, in those countries of Europe where government regulation works badly, black markets and the lack of consumers' goods on which to spend the farmers' income have created difficulties for the Nazis and also added seriously to the burden of the scarcity of food for the average consumer in the urban areas.

It will thus be seen that, although European agriculture suffers from serious disturbances, these disturbances are not so great as, on first thought, might be assumed. The suffering now being endured by a great part of the urban populations in Nazi-occupied Europe are due not alone to scarcity of supply but also to breakdowns in transportation and faulty distribution. Correction of this situation must go hand in hand with the measures for increased production when the time of liberation comes. On the whole, agriculture in Nazi-dominated Europe is working below capacity, but it is still a going concern. The short-comings, although great, can be overcome in a relatively short span of years if the proper measures are taken and no time is lost as soon as the occupied countries are liberated.

By and large, agricultural production in Central and Western Europe has held up better during the present war than during the war of 1914–1918. A brief survey of the availability of the most important elements of production will indicate the reasons and point towards the kind of measures needed to restore full production.

Agricultural Labor

In general, labor on European farms has probably been disturbed less than during the last war, because this time the Germans have

overrun the whole central and western part of the continent. The native armies of the occupied countries are not mobilized—the exception being the satellite Balkan countries—as they were in the last war, and the drain upon farm labor caused by the demand for military service is almost non-existent. It is true that the Nazis have tried hard to mobilize all workers and harness them to the German war machine, but, on the whole, they have tended not to starve agriculture for labor. Germany experienced a serious food shortage during the last war and the Nazis have taken pains to see to it that it should not happen again. As the drain upon German man power has become more and more severe, prisoners of war have had to be drawn upon for farm work. Workers from occupied countries have been pressed into work in Germany, but the mobilization has drawn little upon agricultural labor. On the whole, farmers in occupied countries have been able to retain farm workers much better than during the last war. High farm prices and incomes have assisted them in doing so. An outstanding exception to the rule is the retaining in Germany of a million French war prisoners. A very large part of these prisoners must be men who came from French farms. Poland presents a similar case. It is not the intention to convey the idea that all European farms have their full complement of farm workers. There are shortages, and they will not be remedied until the greatest folk wandering in history has taken place when the many millions of displaced peoples of Europe return to their home lands. But the fact that the labor shortage on farms has been much less severe than during the last war has been an important factor in keeping up farm production.

Farm Machinery

In general, farm machinery does not play so important a part in European agriculture as in American agriculture. In the south and east of Europe, most farms are too small and wages too low to make it economic to use as much machinery, but, in parts of Italy, France and Germany and in Belgium and The Netherlands and in the Scandinavian countries, agricultural work is definitely organized on a machine basis. This has been the situation for so many years that the labor is simply not there to till the lands and harvest the crops by hand if machine methods should fail. If the machinery can not be replaced at a normal rate, it must at least be kept in repair if disastrous results are to be avoided. In the main, this has been accomplished. The standard of the European metal industries is

such that repair parts even for imported machines can be furnished without difficulty. With respect to new machinery, the information available is very incomplete, but it appears that some new machinery has been forthcoming but that the rate of replacement is considerably below the rate of pre-war years. It is to be expected that, beginning in 1943, with the intensification of bombing of German factories and the pressure upon German industry and the more seriously felt man power shortage, European agriculture will suffer a deterioration in the condition of its machinery.

There are certain kinds of machinery of which a large part was normally imported from Britain and from the United States: namely, tractors and tractor-drawn implements. For various reasons, this lack of import has not been made good by German production or home production in occupied countries. One of the reasons is the growing shortage of motor fuel. Thus, considerable deficiencies have accumulated with respect to tractors and tractor-drawn implements. At the same time, there has been a decline in animal draft power. In certain regions of Europe which have been a theater of war once or twice during the present conflict, a large percentage of horses on farms has been removed and lost. If such a loss of draft power is carried beyond a certain percentage, there is grave danger that, in the immediate postwar period, some good agricultural lands may be left idle for lack of draft power. To guard against such a possibility, it may be highly worth while to provide tractors and tractor-drawn implements not only where tractors normally are used but for use for a few years even in some farming areas where tractors are not normally justified on an economic basis.

Most of the machinery used in Europe normally is manufactured there, imports from outside being restricted to tractors and tractor-drawn implements. But some of the most important factories are located in areas that have been heavily bombed, such as North-Eastern France, the Ruhr and the Rhineland. A large American-owned plant is in the Cologne industrial area.

If European manufacturers are given time to rebuild factories, re-assemble workers and re-organize the flow of materials, these factories will again furnish most of the machinery needed, but there is likely to be a temporary stoppage in the flow of output from these factories, and the loss in machinery available must be made good by a sufficient quantity of certain kinds of the most important types of machinery.

If this machinery is to be available, it must be delivered from the United Nations; if not delivered, the first and second growing seasons may go by without making full use of the production possibilities of European farm lands. And even an increase of only five percent in the total food production of Europe will amount to some eight to ten million tons of food. It will thus be seen that the load on United Nations food supplies arising from the need for feeding the millions who will need relief at the end of the war can be reduced very materially if European farmers are assisted in restoring production at the earliest possible time.

The first prerequisite for getting a crop is that the land be tilled and planted. The heavy work of tilling the soils,—that is, plowing, harrowing and preparing the seed bed, are the operations likely to present the greatest problem, if draft power is severely reduced; and, on the heavy soils which are found in large parts of the European continent, plowing and harrowing require much power, horse power, or mechanical power. Therefore, tractors, tractor plows—harrows and drills—will necessarily make up an important part of the rehabilitation machinery program. But harvesting machinery is not excluded, because, in Northwestern Europe, much grain would be wasted in the fields if sufficient machinery in working order is not available.

Fertilizers

Nazi-occupied Europe provides its own nitrogenous fertilizers from factories which employ the nitrogen fixation process, using atmospheric nitrogen as the raw material. The productive capacity of these plants is very great and, besides supplying the explosives industries, nitrogenous fertilizers have been provided in almost normal quantities during the war years. Even if a large part of the plants should be destroyed the ones remaining will presumably suffice for supplying fertilizers.

With respect to potassium fertilizers, Germany and France for many years have been, and still are, the largest producers in the world. Therefore, there has been no scarcity of potassium fertilizers during the war years.

But, with respect to phosphate fertilizers, the situation is different. This kind of fertilizer has been scarce. In some of the German-occupied countries, large quantities of basic slag, which is a by-product from the steel mills, are normally used, and this source of

supply has probably yielded greater than normal quantities along with increased steel production until recently when bombings have destroyed part of the steel plants. But, in addition to the basic slag, very large quantities of superphosphate were used, and the raw material for making superphosphate is phosphate rock. And phosphate rock has not been forth-coming from North Africa in large enough quantities because of the naval warfare in the Mediterranean and in the Atlantic and the over-burdening of the railroads. However, about twenty-five percent of normal supplies of superphosphates has been available to farmers in occupied countries—until North Africa was occupied by the Allies. That eliminated this all-important source of rock phosphate.

However, if phosphates have been applied in liberal quantities for many years, a certain amount of phosphate is retained in the soil, and thus European farmers have had a phosphate account in their soils to draw upon during the war years, an account that is being drawn down year after year. Therefore, in spite of the scarcity of phosphates, it has been possible to grow quite satisfactory crops. In 1942, there was an improvement in yields, and the 1943 crop was even better. Nevertheless, this depletion of the phosphate content of the soils, although it is making itself felt slowly, is likely to constitute a drag on yields—not to mention the nutritive quality of the crops—in years to come. Resumption of the supply of phosphate fertilizers in normal quantity requires the shipping of some four million tons of rock phosphate mostly from North Africa to the ports of Europe where the superphosphate plants are located. If, at the end of the war, enough plant capacity is left in the bombed port cities of Europe, the transport problem, though great, presumably can be taken care of. Full-scale production will hardly be accomplished the first year after re-occupation. The drawing down of the phosphate account will continue at least for another year.

Seed

In general, it may be said that Europe grows its own seed. Normally, it does more than that. In prewar days it exported large quantities for other parts of the world. But within Europe there is a considerable amount of specialization. There are exporting areas and deficit areas. The cool summers of England and Denmark, for example, favor the seed-growing of the cruciferous species—cabbage, rutabagas, turnips, as well as the seed-growing of a number of

different field grasses, such as orchard grass, rye grass and meadow fescue. The continental climate of Poland and Hungary favors the growing of red clover and alfalfa seed respectively. France, Germany and Italy have large specialized vegetable-seed growing areas, among which may be mentioned the areas around Naples and Bari in Italy, names figuring recently in the war news.

During the last phase of the war in Europe and the period immediately following the cessation of hostilities, transportation and trade may easily be disrupted and various importing areas may be cut off from the normal sources of supply. To some degree it is possible to substitute one kind of seed for another, to use more of some grasses and less of others, to sow larger acreages with rutabagas and smaller acreages with mangles, and to sow spring barley instead of winter wheat. But, even if such measures are widely used, it may be necessary to import some seed from Britain, the United States and other Allied countries if all lands are to be planted in time.

There may also be some destruction of seed stocks. The modern commercialized seed industry is so organized that, under present-day conditions of aerial warfare, it exposes the agriculture it serves to peculiar danger.

It is the practice to ship seeds from the farms to the cities for final cleaning, standardization in big lots and storage, wholesaling and "mail-order" retailing. Thus, the country's seed stocks come to be held in relatively few places with the largest stocks in the big towns, usually near the waterfront and the railroad yards—the strategic nerve centers of communications which are singled out as targets for bombing raids.

Some dispersion of stocks may have taken place, but it is not easy to quickly find suitable storage space, and it is not to be expected that bombing of such cities as Magdeburg and Hamburg could take place without some destruction of seed stocks—how much will not be known until after the war.

From these facts, it will be seen that, in rehabilitation of agriculture, there must be some planned provision for stock-piles of seed against emergency situations which may arise even in regions which normally are able fully to take care of their own seed needs.

Livestock and Feed

As indicated above, livestock numbers have been reduced and production of livestock products has declined even more than what

corresponds to that reduction. This is because feed supplies are short, even for the herds now on hand. One might expect that the farmers by now had adjusted their livestock to the feed supply and arrived at the optimum size of herds under war-time conditions. Roughly, this has been done, but, with a bias towards overstocking. The farmers are especially anxious to preserve the herds of cattle and to maintain their quota of young stock; and they are looking forward to the end of the war when greater feed supplies will be available. Therefore, they are putting up with a disadvantage at present to obtain a greater advantage in the future,—namely, to get back quickly to full production.

To rehabilitate the livestock industries, the livestock now on hand must be fed rations which enable them to produce more nearly to capacity. In practice that means that they must be fed as rationally as they were previously. And, in addition, the numbers of livestock must be increased so as to restore the herds to previous size.

In Eastern Europe, in Poland, Russia and parts of the Balkans, which have been theaters of war, livestock losses have been very great, but, in most of Nazi-occupied Europe, that is not the case. To the contrary, livestock numbers have kept up surprisingly well. Cattle and cow numbers have decreased from seven to eight per cent in some of the occupied countries to as much as fifteen to twenty per cent in others. In Germany itself there has been hardly any decrease.

In general, the reduction of cattle herds has not been so heavy that they can not be restored in a relatively short span of years, say six to eight years. Most likely, there will be some local areas where breeding animals must be imported from outside, but even in such cases the farmers will prefer to get cattle from adjacent regions with breeds which they know are well suited to the prevailing conditions of climate, feeds and care. The farmers prefer to increase productivity by a further development of their local breeds undisturbed by imports of new and quite different breeds. In some areas for example the commercialized intensive dairy areas of the Channel and North Sea coasts, American breeds would fit very well, but, in the greater part of the occupied countries, this would not be the case. Therefore, real large-scale transfer of breeding stock across the Atlantic is hardly to be looked for, although there may well be a number of shipments, each of thousands of cattle.

The reason why cattle numbers have been maintained relatively well is that cattle can be fed predominantly on roughage feeds. Nature designed the cow as an animal which could live on grass, hay, straw and other roughage. In modern dairy farming, large quantities of grain are profitably fed to cows in order to utilize the great productive capacity of the present-day dairy cow, but, if grain and other concentrates are not available, the diet of the cows may, without damage to their health but with rather damaging results to production, revert to the more primitive stage. It may approximate a ration made up of roughage alone.

Therefore, we find that the decrease in the number of cattle is much smaller than is that of the grain-eating animals. These, the hogs and chickens, have decreased very considerably. The decrease in the number of hogs varies from country to country, but, in Northern Europe the decrease is of the magnitude of about fifty percent. Chickens have decreased even more; declines to twenty-five to thirty percent of the former numbers are not unusual. Fortunately, hogs and chickens are precisely the animals which, after the war, can be multiplied rapidly as soon as feed supplies permit.

The number of horses has also declined. This is a serious matter because European farms rely on animal draft power to a greater degree than American farms. The decline, however, has not been uniform in all countries. In two large countries, France and Poland, there has been a decline of probably fifteen and thirty percent respectively, but in other countries further removed from the theaters of war there has been no decline in the number of horses at all and in some cases even a slight increase.

Draftpower

Also, on European farms, mechanical power was being substituted for horse power but to a much smaller degree than in the United States. During the war years, tractor fuel has become more and more difficult to obtain and tractors finally had to be converted to charcoal-burning if they were to be used at all. In prewar city transportation, the motorization had gone much further. In the cities of Northwestern Europe, it was almost completed. But, throughout the occupied countries, the extreme shortage of motor fuel during the war years has caused city transportation to revert to the horse-drawn vehicle stage. That means that large numbers

of the best horses have been sent to the cities. Therefore, even in those countries where the total number of horses has been stationary, the number of horses on farms has declined.

It is too much to expect that sufficient trucks and gasoline can be provided rapidly at the end of the war to release city horses for the farms during the first planting season. And the growth of the horse population is a process that requires anywhere from four years or more to get under way and several times that span of years to accomplish, depending upon breed and age distribution of horses now on hand. Therefore, to counteract the loss of horse power—that is, the absolute loss of horses requisitioned for the German army and lost through destruction in war and the temporary loss of horses to the cities—rehabilitation of agriculture requires that there be some provision for mechanical power to meet the worst shortages of animal draft power if the opportunities of the first planting seasons are to be utilized and no good farm lands left idle.

Other Production Elements

In addition to the production goods mentioned, there may, for a while, be critical shortages of certain supplies needed in present-day farming. Gasoline and kerosene are needed for fuel and lighting. Lubricating oil of good quality has been very scarce. Binder twine is a prime necessity because, in Europe, the grain-binder is still the most important harvesting machine. Incidentally, the ersatz twine made of paper, which has been used during the war years, is said to be much superior to the paper twine of 1914–1918, but it still breaks and causes many bundles to be thrown out unbound; it is certainly far less serviceable than the real thing. Last but not least, must be mentioned insecticides and fungicides and veterinary medicines, vaccines and seras to protect crops and livestock from loss from disease.

All those supplies are normally produced in Europe, but the supply situation for those goods is analogous to that of seeds. The importing areas may temporarily be shut off from their sources of supply.

Until European transport and trade is restored and petroleum products, sisal and hennequin fiber for twine, copper for fungicides, etc. can again be obtained freely, the use of substitutes must continue and some provision for allied supplies to meet emergency situations must be made. The cost of such supplies is very small

indeed compared with the losses which will be sustained if they are not available.

Economic and Political Conditions

The discussion has been mostly in terms of technical factors, such as decline in cereal acreage and in yields of crops, reduction in numbers of livestock, worn-out farm machinery, etc. Rehabilitation thus looked at becomes a matter of providing for the production and sale of certain supplies of the right kinds and in sufficient quantity delivered in time, all for the purpose of providing European food relief in the most economical and effective way, namely, by increasing European food production. The alternative is to draw more heavily upon scarce shipping and badly needed food supplies in the Allied countries.

But agricultural rehabilitation is only partly a technical matter. It is also a problem of economic reorganization. The economic conditions which will prevail at the end of the European war will profoundly influence the rate at which the agricultural industry will recover, and these economic conditions, in turn, will be greatly influenced by the political situation.

And who can foretell what the political climate in postwar Europe will be? Certainly peoples who, during the Nazi occupation, have suffered untold physical and mental privation and stared in the face the very possibility of national annihilation are not going to return to precisely the conditions of prewar Europe. New leaders, new movements and new social groups are on the make.

It may be agreed that it is technically possible to restore cattle numbers in three to four years and to raise hog and poultry numbers to prewar levels in less than two years. But, if we take into consideration the economic conditions which are likely to affect the action of the farmers, it is relatively safe to predict that the restoration of European agriculture to pre-war levels of production will be a process covering five to eight years and, in some countries, even more.

Livestock production is dependent upon feed supplies. To restore the poultry industry is not just a problem of starting up the hatchery industry. It is much more a problem of obtaining feeds by increased home production and by imports from over-seas countries. The same reasoning applies to the process of restoring hog numbers. It is mostly a question of sufficient assurance of feed

supplies and of reasonably favorable relations between prices of feeds and of hogs. In milk production, there will most likely be a very rapid snap-back when concentrates again become available in sufficient quantities. Cows producing at only seventy-five percent of capacity may, without difficulty, reach the eighty to ninety percent level in a period of a few months. And that means an increase of approximately twenty percent. But the last end of the road back, which depends also upon the growth of herds, is long and difficult.

And, with respect to feed supplies, it is easy to be too optimistic. History repeats itself, but seldom in exactly the same way. This time when the war in Europe comes to an end, it will not mean, as it did the last time, that the end of the war has been reached. There will still be a war going on in the Pacific. The war economies of the allied countries must continue, although perhaps in a modified form, and this is going to influence the economic recovery of Europe. Most likely there will still be a certain amount of shortage of shipping, a shortage that will make it difficult to ship as many million tons of feed stuffs as Nazi-occupied Europe imported in pre-war days. And, incidentally, some of the most important oilseed exporting areas of the world, those in the Far East, are in Japanese hands.

As long as ocean shipping from all the world's surplus areas of oilseeds and feed grains can not be resumed, the present emphasis in European agriculture on grains and potatoes for food must continue and livestock production can not be fully revived. The changes that have occurred in land utilization and livestock production represent an approach to adjustment to these conditions, and this somewhat adjusted organization must be retained until full imports and exports can be resumed.

Another fact worth mentioning is that the destruction of the European transportation system—ports, warehouses, railroad yards, railroad buildings and rolling stock—certainly will be far greater at the end of the present war than it was last time. Present-day aerial bombing is far more destructive than anything known in previous wars. And there have already been numerous illustrations in Europe, as well as on this side of the Atlantic, of what damage can be done by a shortage of transportation in our present-day economic system so thoroughly organized on the basis of exchange of products between areas.

To get back to full production, the farmers of Europe must have some reasonable amount of assurance of remunerative prices and stability in the value of the currency in which they are paid. This means that there must be an orderly economy, reasonably full employment resulting in a supply of consumers' goods, and stability of foreign exchange rates. The period between the wars was marked by violent movements in the value of foreign exchanges and extremely severe economic depressions. And we may ask ourselves: Will the nations succeed in returning to peace-time production without any serious economic depressions with simultaneously bad effects on markets for farm products? Will it become common government policy to subsidize the consumption of expensive protective foods by that part of the population which has insufficient income to pay for them? If such measures become fairly general, it will constitute a remarkable improvement in the demand for foods.

It would certainly appear that a certain amount of disturbance will follow the scaling down of the disproportionately high prices for foods which the Nazis have forced upon the occupied countries.

The list of important economic factors could be considerably extended. However, all these problems can be solved if they are tackled wisely and courageously. After all, something has been learned from the bad experiences since the last war. But, if the problems are not solved, restoration of agricultural production will be significantly retarded.

There is one encouraging difference. This time it is recognized that all these problems exist, and it is not expected that they will solve themselves by some magic process of rapid return to normalcy. The United Nations have set up an organization, the United Nations Relief and Rehabilitation Administration—UNRRA—to deal with the problem of food, clothing and medical relief and industrial and agricultural rehabilitation.

The speed with which it will be possible to bring about agricultural rehabilitation will be greatly dependent upon how successfully the problems in the other sectors of the economy are handled, but because agriculture in most of Europe still accounts for so large a part of the economy, agricultural rehabilitation in turn will be a factor of considerable influence in the general economic recovery of Europe.

AMERICA LOOKS AT RUSSIAN AGRICULTURE*

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AMERICAN interest in Russian agriculture, heightened by the war, has never been of a purely academic character. It was rooted in the competition of the two great agricultural nations in world markets which began with the development of steam transportation in the middle of the 19th century. This was largely the viewpoint from which the American farmer and agricultural specialists regarded Russian agriculture before the first World War and again during the inter-war period, after Russian agriculture recovered from the effects of the war, revolution and famine.[1]

At the same time, and insofar as permitted by differences in their political and economic systems, the two countries were learning and borrowing what they found useful in their respective agricultural experiences. Geographical similarities, particularly an extensive semi-arid zone of relatively recent colonization, favored such interchange. Thus a number of valuable Russian wheat varieties were introduced into the United States partly through the work of plant breeders, notably the late M. A. Carleton,[2] who made a special trip to Russia for this purpose, and partly through Russian immigrant farmers. This was especially true of durum or macaroni wheats. Experimentation with the growing of new rubber-yielding

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* The views and opinions expressed by the author are his own. They do not reflect any Federal Bureau or Department viewpoint on the problems considered.

[1] It may be of interest to recall that the United States played a significant role in alleviating the effects of this terrible famine. The American Relief Association, headed by Mr. Herbert Hoover, furnished to Russia during 1921–23, 595,000 short tons of food and 9,851 tons of soap, medical supplies, clothing, etc. In addition to this contribution from American sources (including a congressional appropriation of 20 million dollars, of which over 18 million were spent), the A.R.A. purchased and transported at Russian expense, 186,689 tons of food and 359 tons of soap. In a resolution passed by the Sovnarkom (Soviet Council of Peoples Commissars) it was stated that: "Thanks to the tremendous, utterly unselfish efforts of the A.R.A., millions of people of all ages were saved from death, and whole villages and even cities were saved from the terrible catastrophe that was threatening them." H. H. Fisher, The Famine in Soviet Russia, 1919–1923, pp. 400, 553–554, New York, 1927.

[2] Some of the writings on the subject by Carleton are as follows: Successful Wheat Growing in Semi-arid Districts, Yearbook of the Department of Agriculture, 1900, pp. 529–542; Russian Cereals, Bulletin No. 23, United States Department of Agriculture, Division of Botany, 1900, pp. 3–42; Macaroni Wheats, Bulletin No. 3, United States Department of Agriculture, Bureau of Plant Industry, 1901, pp. 3–62; A New Wheat Industry from the Semi-arid West, Circular No. 18, United States Department of Agriculture, Division of Vegetable Physiology and Pathology, 1901, pp. 1–8. See also J. A. Clark, Improvement in Wheat, United States Department of Agriculture, Yearbook of Agriculture, 1936, p. 216.

plants, which began after the United States was cut off by the war from its normal rubber supplies, is also based on seed originally obtained from Russia.[3]

I am not referring here to purely scientific contributions with which scholars in both countries have been enriching the storehouse of human knowledge. But if any Russian work of this character pertaining to agriculture is to be singled out for its originality, it is that of the Russian school of soil science, under the brilliant leadership of Dokuchaev and Glinka, introduced to this country largely by the late Dr. C. F. Marbut of the United States Department of Agriculture. The use of such Russian words as "chernozem" and "podzol" in our technical soil terminology illustrates perhaps better than anything else the extent of Russian influence in this field.

The debt of Russian agriculture to America is even greater. Russian agronomists, confronted with the problem of frequently reoccurring droughts in the semiarid zone, have been studying American dry-farming methods.[4] American cotton varieties introduced in Turkestan and Trans-Caucasia provided the foundation for the development of the important Russian cotton-growing industry.[5]

But nowhere has the American influence been so strong as in the sphere of the mechanization of agriculture. The tractor and combine made even more realistic to the Soviet's leaders their theories of the advantages of large-scale agricultural production.

What Lenin regarded as a dream in 1919 came true in the early 'thirties when thousands of imported American tractors and combines made it possible to overcome the crisis caused by the catastrophic destruction of draft animals during the rural collectivization campaign. As a result of the construction, with the aid of American engineers, of a tractor plant in Stalingrad, followed by two other plants in Kharkov and Chelyabinsk, as well as combine plants in Zaporozhie and in Saratov, Russian agriculture became independent of imported power machinery.

[3] See E. W. Brandes, Rubber from the Russian Dandelion, Agriculture in the Americas, July 1942, pp. 127–131.

[4] See, for instance, N. Tulaikov, Po Onytnym Uchrezhdeniyam Oblasti, Sukhogo Zemledeliya Severnoi Ameriki (Visit to experiment stations of the dry farming region of North America, Moscow, 1924. Professor Tulaikov, who was one of the pioneers in agricultural experiment station work in Russia, pays high tribute to the exceptional attention he received during his trip to the United States.

[5] See L. G. Michael's Cotton Growing in the Soviet Union, *Foreign Agriculture*, August 1938, pp. 353–388.

Whatever the subsequent modifications in Russia, it was largely from the United States that the pattern of large-scale power farming was originally derived. It was not a mere coincidence that Mr. Campbell's large wheat farm in Montana became a mecca for the pilgrimage of Russian agricultural specialists in the late 'twenties.

The interest in the United States in the Russian collectivization and mechanization experiments in agriculture was accentuated in the early 'thirties by the fear that Russia would dump huge quantities of grain and other agricultural products on the international market, and thereby would intensify the world agricultural depression. For to the state monopoly of foreign trade, instituted in 1918, the Soviet government added a fairly tight control of agricultural production geared to a strongly expansionist program. This fear, however, proved to be greatly exaggerated. After the famine of 1932–33, Russian agricultural exports continued at a moderate level and certainly greatly below those of the years preceding the first World War. Exports of principal grains during the period 1933–34 through 1937–38 averaged only 1.3 million short tons annually as compared with an average of 12 million tons during the years 1909–10 through 1913–14. Butter exports averaged 63 million pounds from 1933 to 1937 compared with 150 million pounds during 1909 to 1913.

The middle 'thirties was the period of the Soviet so-called Second Five-Year Plan, when industrial development did not proceed at quite so rapid a pace as during the preceding five-year period. Consequently the need for foreign exchange to pay for imported equipment and raw materials, which had previously led to forced exports, was less urgent, or other means of payment were found. The development of a gold mining industry in the Soviet Union made it possible to pay with gold for imports, instead of by-exports of goods. At the same time, the growing population, livestock numbers and industries all tended to increase domestic requirements for agricultural products. As a result agricultural exports became of secondary importance.

One could have practically stopped at this point had this article been written before June 22, 1941, when the Nazi invasion of Russia and its joining of the anti-Fascist coalition changed the situation radically. We need not linger over the first major question raised by the Nazi invasion, namely, the contribution of Occupied Russia to the German food supply. As the Nazi hordes are being pushed

to the Russian frontiers this question is rapidly becoming one of historic interest only.

The important fact from the standpoint of the Allied war effort is that some 3 million German soldiers who for two years lived on the Russian land will now have to be fed by Germany itself. Thus the burden on the already strained German war economy will increase greatly during the current year. This statement, of course, must be qualified to the extent that some of the 1943 harvest and some livestock may have been shipped from Occupied Russia with the retreating German Army but on this point there is no trustworthy information. It is clear, however, that as compared with 1942 when the Germans were able to plunder the rich North Caucasus, their food position on the eastern front has greatly deteriorated.[6]

Far more important is the fact that the war ushered in a profound change in Russia's international food position. Soviet Russia herself has become partly dependent on Allied, primarily American, food assistance. Thus the question is no longer how much grain can Russia export but how much food will she need and how much can be shipped under war conditions.

Our lend-lease exports of foodstuffs, seed and other agricultural products to the Soviet Union increased in value from 185 million dollars in 1942, to 410 million dollars during the ten months, January through October, 1943, or a total for the entire period of 595 million dollars.[7] Nearly a fifth (18.7 percent) of our total lend-lease exports to Soviet Russia during the first 10 months of 1943 consisted of foodstuffs and other agricultural products. In our food and other agricultural lend-lease exports during that period Russia was only second to the United Kingdom, taking 27 percent of the total as compared with 64 percent for the United Kingdom. The magnitude of these exports may be better appreciated when it is pointed out that in less than two years (1942 and 10 months

[6] It is not believed that Occupied Russia has made any significant contributions to the German civilian food supply. In an article by Werner Zimmerman in the Nationalsozialische Landpost, for August 27, 1943, it was stated that the grain acquired by the Germans in the Ukraine "serves primarily to supply the military forces that is, the fighting Eastern front, the forces in the military rear zone and the German residents and the population of occupied regions." According to the same source the legumes were also used largely to feed the soldiers and only the oil-seed was sent to Germany for crushing because of the greater efficiency of the German mills and the value of oil cake as an animal feed in Germany.

[7] Thirteenth Report to Congress on Lend-Lease Operations for the period ended November 30, 1943.

of 1943) they exceeded the combined exports of all goods from the United States to the Soviet Union for the 10 years, 1930–1939, which amounted in value to 475 million dollars. The increase is phenomenal even if allowance is made for the higher price level since the war.

Altogether our lend-lease shipments to Russia up to the end of October 1943, amounted to 1,790,000 short tons of food and other agricultural products, including 343,000 tons of wheat and flour, 277,000 tons of sugar, 324,000 tons of canned meat, 441,000 tons of edible fats and oils, of which 33,500 tons were butter, 136,000 tons of dried fruits and vegetables, 38,000 tons of dried eggs and 10,000 tons of seed of vegetables and field crops. In addition, and entirely apart from lend-lease, nearly one million pounds of vegetable seed and two and one-half million pounds of field seed were contributed voluntarily to the Russian war relief agency by July 1, 1943, through the efforts of seed improvement associations, extension services, and thousands of individual farmers and seedsmen throughout the United States.[8]

Such food shipments no doubt played an important part in the food supply of the Russian army which, from all accounts, is adequately fed. The civilian population, however, continues on very short rations, especially in respect to meats, fats, and sugar. An effort has been made through a differential rationing system and in-plant or canteen feeding to give priorities in foodstuffs to groups considered essential to the war effort, the administration of the country and to children. The meagerness of the Russian diet can be seen from the following description: "The Russian wartime diet provides about 1,600 calories a day, compared to 2,500 in wartime Britain and 3,000 in the United States. And 90 percent of the calories in the Russian wartime diet are derived from bread, cereals and potatoes. Sugar is a luxury. Rich pie crusts, salad dressings or even simple doughnuts are unthinkable on the Russian ration of fats.

[8] The sincere appreciation of the Russian people for American seeds sent to aid Russian farmers in the war-devastated areas recaptured from the enemy was expressed by Russian officials in a statement made by the former Commissar of Agriculture, Benediktov, to the former American Ambassador to Russia, Admiral William H. Standley: "As National Commissar for Agriculture in the name of the collective farming peasants of the Soviet Republic I desire to express my thanks to all American organizations and individuals who participated in the purchase, assembling and forwarding of vegetable seeds to Russia. After the withdrawal of the Germans from occupied regions, which they ruthlessly devastated and scorched, the help of American vegetable seeds assisted in reestablishing normal life to many destitute families."

Butter is practically unheard of. When a shipment of American lard reached Moscow, housewives considered it too precious for cooking and used it as a bread spread."[9]

Some limited relief of the food situation is offered by the private market to which the peasants can bring their produce after meeting their obligations for compulsory deliveries to the State, and from their individual little plots. Unlike the Government stores, where rationed goods are sold at fixed prices when available, the peasants are free to ask any price that the traffic will bear. Such open market prices under the prevailing scarcities of consumer goods and foodstuffs are fantastically high, and with lagging wages,[10] therefore, except for the higher earning groups, barter has often replaced cash transactions. This state of affairs is tolerated by the government because it augments the sorely needed supply of foodstuffs for the cities, and also encourages peasants to produce surpluses over and above the quota deliveries specified by the Government.

In view of the severe shortage, the city population has been encouraged to plant individual "victory" gardens in which potatoes and vegetables are grown. Such gardens have been an important factor in the rural food supply since collectivization. There were, in fact, complaints before the war that the collective farmers spent too much time working their little plots to the neglect of collective fields. In some cases collective farmers obtained larger receipts from the sale of produce grown on these plots than their earnings from collective farming. Therefore, the minimum period of time to be devoted to collective farming was fixed by law in May 1939. Since the war, such gardens became also a factor in the urban food supply. In 1943, over 11.6 million city workers and employees had vegetable gardens compared to 5 million in 1942. The area planted increased from 1,250,000 acres to 1,900,000.

The farm population in the Soviet Union is not subject to food rationing and it is generally believed to be better off than the urban population as far as food is concerned though it, too, suffers from the extreme scarcity of consumer goods. In considering the food position of the Russian farmer, however, the fact should not be

[9] Leo Gruliow and S. K. Lederer, Russia Fights Famine: A Russian War Relief Report, p. 1, New York, Russian War Relief, Inc.

[10] "Generally speaking, there has been no inflation of wages" during the War period in Soviet Russia, according to the *London Economist* of July 3, 1943, p. 17. It is the acute shortage of consumers goods due to a concentration on war production that is at the bottom of inflation which is manifested in the uncontrolled private market.

overlooked that the Government, through a system of procurements, exercises first claim on production; and the peasant is a residual claimant.[11] Caution, therefore, must be exercised in generalizing about the disparities in feeding the cities and the countryside in Soviet Russia.

That the principal causes of the severe food shortages in the Soviet Union lie in the Nazi invasion and devastation of some of the most fertile agricultural regions of European Russia, is well known. In 1941 the Germans occupied all but a small section of the Ukraine and Crimea and also parts of what is known as the Central Black Soil area, north of the Ukraine. In 1942, they had completed the temporary occupation of the Ukraine and invaded the Don-North Caucasus area. These were regions which normally not only produced enough food for the needs of their own population, but also for export abroad and to the deficit more industrialized regions of northwest and central Russia, as well as to the cotton-growing area of Asiatic Russia. These exportable supplies consisted mainly of grain, the staple food of the Russian masses.

Some of the deficit areas in northwest and central Russia were also overrun. In general, however, most of the deficit area remained uninvaded and some of the deficit sections occupied by the enemy were the first to be liberated by the Russians in the winter of 1941–42. On the other hand, most of the surplus-producing area west of the Volga was at one time or another occupied by the Nazis. East of the Volga where the Germans never penetrated, agriculture on the whole is carried on under more precarious climatic conditions than west of that line.[12]

Altogether the invaded regions accounted for about 40 percent of the Russian prewar crop area.[13] The loss was of course greater in the case of some individual crops. Thus, the invaded regions accounted for 35–40 percent of the wheat acreage, including most of the high-yielding winter wheat,[14] about 40 percent of the im-

[11] I have discussed this subject in somewhat greater detail in the *Russian Review* Fall, 1943, pp. 86–87.

[12] See Lazar Volin, War Places New Burden on Eastern Russian Agriculture, *Foreign Agriculture*, March 1943, p. 111.

[13] According to the former Soviet Commissar of Agriculture, I. A. Benediktov, the regions that the Soviet Union lost temporarily accounted for 39 percent of the area sown to crops. *Sotsialisticheskoe Sel'skoe Khozyaistvo*, Vol. 14, No. 1–2, 1943, p. 34.

[14] The bulk of the Russian spring wheat area is east of the Volga and consequently has not been invaded. Unlike the United States spring wheat in Russia predominates over winter wheat, but not to the same extent as in Canada. In the Soviet Union

portant rye area, 60 percent of barley, over 80 percent of the sugar beets and more than half of the sunflower seed area, the most important Russian oil seed crop.

When it is also pointed out that the invaded agricultural regions were, as a glance at the map will show, much better supplied with railroad transportation than the uninvaded agricultural areas east of the Volga and the Urals, little imagination is needed to visualize the difficult Russian food position.[15] Certainly the food supply problem has been far more serious in Russia during the present war than during the first Russo-German war, when the surplus-producing area was practically untouched by military operations. It is true that a food crisis also developed during the last war. The revolution started with bread riots in Petrograd in 1917. But the food shortages then were due primarily to maldistribution and inadequate transportation, and not to the loss or devastation of important agricultural regions as during the present war.

Confronted with a critical food situation the Soviet Government bent every effort to expand production in the uninvaded area. There were, however, considerable obstacles to such a program. That mobilization made heavy inroads on the male working force of the Russian countryside is hardly a secret. Some of the uninvaded rural areas of the east and north, which were less densely populated than those of the invaded regions of central and western Russia must have been especially hard hit. Thus in 1937 there were 205 workers per collective farm in the largely invaded Central Black Soil area of European Russia, and 291 in the Ukraine, as compared with 147 in western Siberia and 161 in Kazakhstan beyond the Urals. As a matter of fact in 1939 a movement of peasants from the collective farms of the densely populated central regions, of European Russia to the relatively under-populated eastern regions, was organized by the Government. The loss of male labor, therefore, placed a heavier burden on the women who even before the war constituted 40 percent of the workers on collective farms in

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spring wheat before the war accounted for two-thirds of the total wheat acreage, in the United States for 28 percent and in Canada for 97 percent.

[15] It is believed that at the beginning of the war Soviet Russia had substantial food reserves, primarily grain stocks centralized in government hands. The stringent government procurement policy, especially in 1939 and 1940, lends weight to this belief. But how large such stocks were and to what extent they were destroyed in the process of scorching or captured by the enemy is not known. I discussed this subject in somewhat greater detail in the *Russian Review* Fall, 1943, p. 79.

western Siberia, for instance.[16] Some help was, however, afforded by the mobilization of urban population including school children for field work.

With the mechanization and collectivization of agriculture, skilled workers such as tractor drivers, and combine operators, as well as specialists and managers and supervisors,[17] became far more important than in the days of small peasant farming. The absence of many of these experienced people who had been called to the colors was keenly felt. Here too, however, women stepped into the breach. There were, for instance, 200,000 young women tractor drivers in the spring of 1943.[18] Special efforts were made even before the war, to train them for such skilled or technical work.

Another serious obstacle to agricultural production has been the shortage of draft power. As is well known Russian agriculture has been heavily mechanized. In 1937, for instance, mechanical power accounted for two-thirds of the total power resources of collective farming. Nearly three-fourths of the total spring plowing was performed by tractors and a third of the grain harvesting work by combines. The proportion was even higher for individual regions. In the middle and lower Volga for instance, over 90 percent of spring plowing and 59 percent of grain harvesting were mechanized. In the Ural area, 77 percent and 44 percent respectively; in Western Siberia, 68 and 46 percent.

Because of emergency war conditions, mechanization should have been especially advantageous. There is, however, another side to the story. Even before the war, tractors and combines in Russia were subject to heavy wear and tear due to intensive utilization and inefficient handling. The Soviet press each season was filled with reports of the idle tractors due to frequent breakdowns, poor repair work, shortage of spare parts and fuel.

Judging from Soviet press reports, this situation has been aggravated since the war. This is not surprising in view of the large number of new, less experienced workers and decreased facilities for producing spare parts. As a matter of fact, supplying of spare parts has been declared primarily a local responsibility. Moreover,

[16] Data are for 1937 for the Novosibirsk and Altai regions of Siberia. The proportion of women was even higher in European Russia reaching 50.6 percent in the Kiev region. I. V. Sautina, editor, Kolkhozy vo Vtoroi Stalinskoi Pyatiletke (Collectives during the Second Stalin 5-Year Plan, Moscow, 1939, p. 54).

[17] There were complaints in Soviet publications of over-staffing of the supervisory personnel on collective farms before the war.

[18] Pravda, May 20, 1943.

some of the tractors were mobilized for war use and new production for agricultural purposes has been doubtless at low ebb especially in view of the destruction wrought in the tractor plants in Stalingrad and Kharkov.

Under such conditions the horse, which in the 'thirties was largely replaced by the tractor, has acquired a new importance in Russian agriculture. But Soviet Russia on the eve of the war had probably not more than half of the number of horses it possessed in the late 'twenties. In 1938, Siberia and the middle and lower Volga had less than 40 percent of the 1928 number and Kazakhstan less than 20 percent. Furthermore, horses too were mobilized for the army. To relieve the shortage of draft power it has been necessary to press cows into service.

Under such conditions it would be too sanguine to believe, as some people apparently do, that there could be an enormous expansion of acreage during the war in the great open spaces beyond the Urals. Even the land resources immediately available for such expansion without previous reclamation or increased transportation facilities, should not be exaggerated. When the Soviet Government formulated in 1940 a program of grain acreage expansion beyond the Urals, it contemplated, under peace conditions, an increase by 1942 of only 5 to 6 million acres in grain as compared with 1938. (The total Russian 1938 grain acreage was over 250 million acres.) It should not be overlooked that the crop acreage in these regions increased by a third during the decade that ended in 1938.

Fortunately, despite all obstacles, the harvested acreage in the uninvaded area had increased in 1942 by over 5 million acres and further increases took place in 1943. The fall sown area for the 1943 harvest increased by 5.2 million acres.[19] New crops were introduced in regions where they have not been grown before. A notable example is presented by sugar beets, which, as pointed out above, were especially heavily concentrated in the invaded regions of central and southern Russia, but are grown now in many eastern and northern regions. Much emphasis has also been placed on expanding the potato acreage.

The increase in acreage sown in 1942 and 1943 in the uninvaded zone has probably been more than offset by inferior tillage and

[19] Commissar of Agriculture Benediktov in *Sotsialisticheskoe Zemledelie*, December 17, 1942.

large harvesting loses in many districts. There was much complaint of weedy fields. The government paid special attention to this problem in the official plan for the 1943 crop year, published in the Soviet press on March 20, 1943, recommending abandonment of excessively weedy fields.

A formidable agricultural problem has been posed by the recovery of most of the areas occupied by the Germans. Conditions no doubt vary in different sections, depending upon the length of enemy occupation and the speed of the subsequent withdrawal. Both Russian and German reports, however, agree on the fact of tremendous destruction in the rural areas. Farm implements, livestock and even houses did not escape this fate.

Some examples cited by the correspondent of the Moscow Izvestiya, who followed the advancing Russian army, are given in the October 13, 1943 issue of that paper. In one village the Germans burned all 400 houses. In another village 324 out of 527 houses were burned, also a considerable amount of harvested grain was destroyed. In a third village, out of 203 houses there remained only 15 and in a fourth, 40 out of 230 houses. In a fifth village 45 houses were burned as well as the collective farm granaries, warehouses and flour mills. The Germans took with them 30 horses and 100 hogs, and slaughtered all chickens and geese. In a sixth village 685 houses out of 700 were destroyed. (I am omitting the description of the acts of savagery perpetrated against the peasant population). In the Voroshilovgrad province of the Ukraine (in the Donetz Basin) the Germans slaughtered on collective farms 37,000 head of cattle, 29,000 sheep, 15,000 hogs and 47,000 horses.[20] The Soviet press has been full of reports of a similar tenor from the liberated regions. A comprehensive decree of the Soviet Government on reconstruction of reoccupied regions, published in the Soviet press on August 22, 1943, devotes therefore considerable attention to the problem of rebuilding in the devastated Russian countryside.

It was probably more difficult to destroy growing crops thoroughly, especially away from the main thoroughfares, and some harvested grain was probably hidden by the local population. But the acreage sown to crops was greatly reduced in the invaded regions, especially in sections nearest to the front. In such an important region as North Caucasus, for instance, there was very little

[20] *Izvestiya*, July 8, 1943.

winter sowing for the 1943 harvest. Because of reduced production and German destruction and plunder it is a question whether the reoccupied area, which normally produced surpluses, will be able to feed its own reduced urban population until the 1944 harvest, when, with normal weather, conditions should improve.

The livestock situation in the reoccupied regions will continue to be difficult as, judging from all indications, few animals were salvaged. The decree on reconstruction referred to above, gives figures of livestock which was evacuated from the collective farms of the invaded central and southeastern regions (exclusive of the Ukraine). The evacuated cattle, sheep and goats constituted less than 10 percent of the respective types on collective farms in 1938 and less than 5 percent if livestock owned individually by collective farmers is added to our 1938 base. Less than 3 percent of the horses on collective farms were evacuated and the remainder largely mobilized for war purposes or destroyed or captured by the Germans.

How long the process of agricultural recovery will take no one can foretell at the present juncture. Certainly, while the war lasts conditions are not propitious for rapid recovery. That the shortage of draft power is a serious limiting factor is quite obvious. Before the war in 1938 the Ukraine alone had over 87,000 tractors and over 2.9 million horses. North Caucasus had 46,000 tractors and 1 million horses. That very few horses were left after the Germans retreated, seems beyond doubt. While an effort was made by both sides to destroy tractors as part of the scorching policy, many of them apparently were not damaged beyond repair, as both the Germans and the Russians have claimed recovery of a considerable number of tractors in the invaded regions. Still, there were probably thousands of unusable tractors. There is little likelihood of obtaining many new tractors until it proves possible to adopt the modern equivalent of "beating the sword into plow shares" that is, to shift from manufacturing tanks to tractors. Here imports from the United States could be of much help, particularly in view of the destruction of 2 of the 3 most important tractor plants in the Soviet Union.

Other obstacles to speedy recovery are the depletion of man power in the invaded regions because of starvation and deportation of able-bodied men and women to Germany; the disruption of the crop rotation systems and the increase in weeds and pests which

affect unfavorably the crop yield. There also may be mentioned a shortage of seed which, however, is being alleviated with the help of the United States. But the most fundamental factor—the land—is still there. In this respect Russian agriculture is more fortunate than industry. After all, land cannot be destroyed as factories can be in the process of scorching.[21] Once the war is over agricultural recovery, particularly in crop production, cannot be far distant and should antedate industrial recovery, especially if the tractor is there to help.[22] Thus, the market for many American foodstuffs in the Soviet Union unlike that in some other foreign countries is a temporary one. It is essentially a war and perhaps a brief, postwar phenomenon. After an initial period of postwar readjustment Soviet Russia should be able to feed itself although the nutritional standards may continue to be low compared with those in the United States and Western Europe.

Nor, judging from past experience, will low nutritional standards prevent exports of food-stuffs if these are deemed necessary by the Soviet Government. Assuming the continuation of the state monopoly of foreign trade, the volume and character of Russian exports and imports will be governed by government policy. The main consideration in the decision to export is the need to pay for imports considered necessary by the Soviet Government. Parenthetically, note the perfect realization under the collectivist regime of the classical doctrine that exports are essentially the means of payment for imports. Thus the problem of agricultural, as of all exports, is intimately related to the future import program of the Soviet Government and the means of financing it. This raises such problems as that of foreign loans which are outside the scope of the present article.

[21] On the other hand, land cannot be evacuated as some industrial machinery was from the Russian war zone.

[22] It must not be overlooked that recovery on the food front in Soviet Russia is also impeded by the destruction or damage of processing facilities; sugar mills, flour mills, canneries, etc.

NATIONALISTIC TRENDS IN AGRICULTURAL POLICY

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ECONOMIC forces are stronger than economic ideals. This has been demonstrated by the trends in national agricultural policy in the United States. Outstanding national leaders with clear ideas of what they believe to be wise national policies find themselves carried by the tide of economic and political forces into practices diametrically opposed to their ideals.

In the last two decades agricultural policy-making in the United States has revolved about the tariff. Farmers strove constantly though with poor success to clarify their views upon the subject. It simply bristled with paradox and contradiction. On the one hand they thought of it as a prime cause of inequalities between agriculture and industry and on the other hand as a means of resolving these inequalities.

The story of the doubts and hesitations of farmers, of their advances and retreats in tariff theory, and eventually of their drastic adaptation of it to agricultural uses in what became finally a program of agricultural nationalism is full of interest and significance for the future. We see it reflected in the reports of secretaries of agriculture, in the record of farm campaigning between the wars, and in the entire inter-war structure of agricultural legislation and program building. Shot through it are both hope and fear, raised now to fever pitch and focussed on the whole tremendous issue of what to do about tariffs and world trade when the fighting stops.

Agriculture's views on tariff questions, as they have evolved in recent years, have been ambivalent. Farm leaders have often said one thing and done another. They have denounced the tariff as an instrument of industrial monopoly, and involved themselves deeply in programs for creating quasi-agricultural monopolies. They have demanded world trade and asked for measures that would strike it down; championed free enterprise and collaborated eagerly in extensive regulatory programs; deplored the rise of economic nationalism and done their bit to push it along. If we ask why, we get no clear answer; farmers have not thought the contradictions through. Yet agricultural policy has made a steady line; for economic forces have been more consistent than economic views. Noth-

ing is more striking, in what might be called the mental history of agriculture, than the uniform manner in which farmers, farm organizations, and farm officials of divergent tariff views have supported identical procedures. Another similarity deserves attention. Regardless of their different views about free enterprise, different farm groups have gone along together toward more and more Government control of agriculture. The driving force has been a common desire to benefit from the tariff.

This last development makes a startling paradox. The modern growth of tariff powers, with its branching into quotas, subsidies, price-controls, Government loans, and what-not, turns conservatives into radicals; makes state-socialists out of old-time individualists. Traditionally, though with a rooted inconsistency, conservatives have been the tariff group in the United States, as in many other countries. Protectionism has had its strongest champions in the camp of laissez-faire. In proportion as this group finds itself obliged to consider agriculture, however, it has to drop its wish to keep the Government out of economic matters, and has even to invite the Government in.

Specifically, as an important Republican group in Congress decided in the early 1920's, it has to figure out ways of amplifying the tariff, so that it will work where otherwise it could not. Against its long tradition, it has to make plans for governmental buying and selling, governmental price control, and governmental export operations. Even strong opponents of this trend give way; for example, it was under the Hoover administration that the Federal Farm Board came into existence, with crop storing plans and eventually with proposals for crop control. Conversely, as will shortly appear, low-tariff men find themselves driven to manage high-tariff policies. The tariff power drags all men from their moorings—high-tariff men from their dislike for governmentalism and low-tariff men from their faith in uncontrolled and unrestricted trade. It presents a dilemma with a sharp horn for both groups, either a halt to the tariff power or the development of it into the complete controlled economy. Dodging the horns brings the groups together.

Temporarily the war suspends or masks the issue, but continuing action heads it for a showdown. Carrying isolation far beyond even the tariff's power to isolate, the war prepares a tremendous post-war tariff problem. Farmers will have to drop the luxury of facing both ways; they will have to decide definitely whether this country

should or should not encourage international trade. Their thinking up to now, if brought to their attention, should help in the analysis. It shows two things plainly: on the one hand, willingness to experiment with tariff principles; on the other hand, fear of the possible consequences in terms of national isolation and regimentation. These attitudes need reexamination, since the war affects them both. If it widens the farmers' world trade opportunity, but keeps their attention focussed too much on home trade, they may cling to price and crop control methods that will lose them their new chance. World trade requires world prices. It should be useful, therefore, to notice some key points in the record, not to prove that tariff powers are good or bad intrinsically but merely to see their continuing vast importance.

As noted, the modern tariff power includes embargoes, quotas, subsidies, price supports, and many other things, as well as fiscal barriers to the international movement of commodities, and reaches its modern climax only with the addition of towering complementary controls. In other words it is the soul of economic nationalism. Farmers favor agricultural laws, for example, which are basically tariff laws, though with features added that tend to hide their tariff nature. If these laws involve self-containment, farmers go along. For example, the Agricultural Adjustment Acts of 1933 and 1938 are tariff laws in both theory and practice—in theory because their purpose is to equalize tariff advantages as between agriculture and industry; in practice because they raise American prices above world prices and consequently necessitate barriers against imports. Such laws imply that in the farmer's mind the tariff, with its modern complications, is the keystone and the superstructure also of his program; if the total edifice keeps things in as well as out, the farmer's first reaction is to shrug and say it can't be helped. In initiating these trends the farmers were not malicious; they wanted only "tariff equality." Unexpectedly this desire became a spearhead of *American* economic nationalism.

But as to whether the tariff system, old style or new style, helps or hurts them on the whole, farmers are still doubtful. They cannot strike the balance. Farm writings in the last few decades literally teem with denunciations of the tariff; yet farmers have never backed a head-on conflict with it. They have suspected they might one day need it. Both Republican and Democratic representatives of important agricultural regions have criticized the tariff system in princi-

ple and supported it in detail—complained that it works against the interests of the farmers generally and in almost the same breath demanded farm duties to match industrial duties. This duality has been the reflection partly of differences in regional and local farm conditions, and partly of a feeling that agriculture and industry may eventually change places with respect to their power to profit from the tariff. It has not escaped farm notice that the domestic market for agricultural commodities has increased and the foreign market declined in importance. Farm views of tariff policy have looked ahead, though usually not far enough ahead.

Another development, this time political in character, has confused the farmers. Use of the tariff power has expanded in certain countries into total economic government through procedures originally quite similar to our own. These countries have sacrificed trade deliberately by means of tariff policies and tariff innovations, with the idea of getting it back and more besides eventually through war. Their policy has not suspended international dealings but has simply made them bloody and destructive. It has involved ourselves, turned our own tariff policy reciprocally into a political instrument, and taken a bigger economic toll than purely domestic economic planning can recoup in decades. Farmers have not wanted this baleful merger of economics with politics. They have never dreamed of using the tariff power themselves for military ends. Manifestly, however, the trend owes something to the encouragement we ourselves have given to the revolutionary use of tariff powers. It isn't wholly foreign doing. This worries farmers.

They begin to ask the political price of economic isolation. Does it ultimately involve military conflict, in which illusory early gains must change into staggering loss? They suspect that the bigger and wealthier a country is, the less it can afford to think only of itself in trade affairs. Getting on price-stilts above the rest of the world, with the aid of tariff devices, looks like possible preparation for a fall, and implies that walking closer to the ground might be safer. When he thinks of potential Canadian, South American, and Australian competition, not only in the foreign market but in the United States, the average farmer wants the tariff. When he thinks of the political damage that competitive tariff-making and other forms of economic warfare can do, he hesitates, and wonders if smaller profits wouldn't be surer.

But farm attitudes on tariff questions show only a slow awakening to the danger of tariff powers. Conventional tariff-making, with

price mechanisms respected and with statesmen unwilling to damage living standards, seems relatively harmless. Even quotas, exchange controls, price supports, and the other modern tariff gadgets, look innocuous in their early stages. Farmers developed their tariff embellishments here with no thought whatever of doing harm abroad; they saw no evil in the early like developments of Germany Italy, and Japan. The thing that stirred them finally was the dictators' use of tariff powers as a military instrument—as the means of subjugating weak neighbors and preparing the Axis for war. This caused them to ask a question which has no answer yet.

Is the tariff power itself provocative and hostile, or does it simply borrow that character from aggressive politics? Swollen now into the entire machinery of economic government, the tariff power will certainly survive the war. Farmers are beginning to inquire whether it has always a fatally restrictive and consequently warlike implication, or has other and happier potentialities which need only to be studied and developed. But the inquiry hasn't got far as yet; it ties in with the whole grand question of whether when the war ends we are to have planned or unplanned international trade. This article, however, will not go deeply into that. Its purpose is less ambitious—simply to indicate where the farmers have got up to now with their analysis, and to offer a few hints as to where they will have to carry it next. For one thing is sure; the analysis of tariff powers and portents must go on.

Significantly, the modern sense of the tariff power, in which it stands for price and production control as well as trade control, developed first in agricultural circles in this country. It goes back to the early 1920's, when farmers began to talk about "Equality for Agriculture." In 1922 an anonymous pamphlet appeared with that phrase as its title. Another edition some months later bore the names of George N. Peek and Hugh S. Johnson as authors. Henry C. Wallace was secretary of agriculture then, and he endorsed the plan proposed, which soon took form in the first McNary-Haugen bill. Agriculture had heavy overproduction of certain staples in the 1920's, and the prices of these and other farm commodities were relatively low. The McNary-Haugen plan sought to raise them through a special and complicated use of the tariff, prophetic in its implications, whereby production for export would be separated from production for domestic consumption, so that prices for the latter would rise behind the tariff wall.

Agencies were to be set up with authority to remove the export

surpluses, and sell them abroad for what they would bring. Prices for the domestically needed goods were to be held, with the aid of the tariff, at the pre-war parity with nonfarm goods. This complicated method, the forerunner of the Agricultural Adjustment Administration plan, had a tariff core, and an elaborate outer network of equalization fees, export subsidy arrangements, government storage and shipping, and price adjustment. It had features, in other words, that disguised their tariff origin, but the basic principle remained unchanged. Branchings of the tariff power throughout the world into quotas, import controls, subsidies, monopolies and so forth, could not have been surprising to our farmers. They had broached the idea themselves though President Coolidge twice vetoed it—on February 25, 1927, and again on May 23, 1928. Unintentionally our farmers were our first economic nationalists, and the responsibility is partly theirs for indicating where the road may lead.

By and large our farmers are probably more pro-tariff than anti-tariff, despite their awakening sense of the connection between tariffs and wars. In purely economic terms tariffism sometimes pays for a time; it presents the political and social bill later. In the early reckoning this offset doesn't figure. Farmers veer between like and dislike of the tariff with its modern extensions; but the liking predominates. They attack the tariff as a cause of disparities between farm and nonfarm prices. Simultaneously, however, they demand its benefits for themselves, either directly through ordinary customs duties or through special devices, where ordinary ones won't do. Mere hints that Argentine corn, Argentine beef, Australian wool, New Zealand butter, or Canadian wheat may come in here in extra-normal quantities provoke instant demands for protective duties. Moreover, farm spokesmen almost invariably support procedures that presuppose the tariff, such as price supports for basic crops, export subsidies, acreage allotments, marketing quotas, and so forth. They know these procedures may hamper world trade; but the bird in hand looks good.

Farm opinion has been definitely anti-tariff only in the South, with its tremendous dependence on cotton exports. In the Corn and Wheat Belt views favorable to it have prevailed. These sections, though almost as dependent on the foreign market as the Cotton Belt, have long heard talk of the American market for the American farmer. They have noted the rise of corn growing in Argentina, of wheat growing in Canada, of wool production in Australia, of dairy

production in New Zealand, and of other threats to American agricultural supremacy. They have reflected, too, that the tariff has built up their market here at home, through its encouragement to domestic industries, and at the same time helped them to occupy and cultivate the land. It isn't pleasant to buy in a protected market and sell in an unprotected one, as the growers for export do normally, but many farmers believe this may not long continue. And they remember the favorable offsets meanwhile. Some of them feel that agriculture and industry have already much in common under the tariff, and may one day profit from it equally, or even in a balance favorable to agriculture. Evolved before the present war broke out, this view is still the prevailing one, because farmers regard the war period as a thoroughly abnormal interlude, and do not apply their tariff-thinking to it.

One source of light on the tariff views of farmers is the report issued annually by the secretary of agriculture. It reflects the opinion not so much of an individual, but of an institution—namely, the U. S. Department of Agriculture. Also, it reflects the thought and interests of the agricultural industry, since specialists contribute to it from grass roots contact with the farm. Serially, the report reveals an evolutionary development in the mind of agriculture, with a continuity surprisingly independent of administrative change. Each incoming secretary picks up where the last one left off. He may, and usually does add something of his own; but break with the past he cannot. Hence the annual reports, which almost invariably have something to say about the tariff, express more than simply personal views.

Specially noteworthy is the absence in them of sharp conflicts over tariff questions. Such differences as do appear, moreover, look small beside the likenesses. Secretaries with high tariff leanings strongly emphasize what agriculture suffers from the tariff, while secretaries with leanings in the other direction usually demand simply tariff equality for agriculture, rather than wholesale tariff lowering. Equally striking is the extent to which different secretaries, regardless of their political affiliations, favor proposals for going beyond the tariff—with plans for price fixing, storage under government loans, control of production, and export subsidies. More or less they all bow to the nationalistic trend.

Secretaries of agriculture under Republican and under Democratic administrations have differed much more in their tenets than in their recommendations. Secretary Henry C. Wallace, who held

office from 1921 until his death in 1924, was an early champion of the McNary-Haugen bills. Well aware that the tariff benefited industry more than it did agriculture, he was not on that account an opponent of the tariff. On the contrary, he simply urged that things should be done to equalize the advantage. Agriculture, he pointed out, had export surpluses that made the tariff largely ineffective for it, and he endorsed plans to separate crops into export and domestic parts, so that the latter could rise in price within the tariff wall. This was not a break with his party on the tariff question. Mr. Wallace thought of it simply as a way to make the tariff work for farmers. As the votes in Congress showed, he was not a lonely Republican in holding this opinion. Perhaps unwittingly, his party led in agricultural nationalism.

Secretary of Agriculture William M. Jardine (1925–29) did not approve the McNary plan; he opposed other similar measures for dealing separately with supplies for export and supplies for domestic consumption. But his motive was not to deny the benefits of the tariff to agriculture; he just didn't like the price-fixing which the McNary plan and its brood involved. It wasn't necessary, he thought. He argued in his annual reports for 1926 and 1927 that the country's natural evolution would bring agriculture within the shelter of the tariff, and very quickly. Agriculture, he believed, was growing into the tariff and industry out of it. Signs pointed to an increase in agriculture's domestic trade, along with a decrease in its exports. It seemed to follow that the traditional roles of agriculture and industry would eventually be reversed. Agriculture would have smaller, while industry would have larger export surpluses; in consequence agriculture would be more and industry less interested in protecting the home market. Nevertheless, Mr. Jardine's annual report for 1928 (p. 28) recommended the Federal Farm Board experiment, which attempted to raise prices by crop holding operations, and ended by advising crop limitation. This was a concession to McNary-Haugenism, forced on him by events. It brought him within a hairbreadth of the Henry C. Wallace position.

Quite similar were the tariff views expressed by Secretary Arthur M. Hyde, who served from 1929 to 1933. It had come to be generally recognized, said Mr. Hyde (Annual Report for 1929—p. 30–31) that tariff protection for the farmer was a necessary part of a sound national agricultural policy. Agriculture was still far from being on a domestic basis, and would undoubtedly have large quantities of certain products to export for many years. Neverthe-

less, it could profit increasingly from tariff protection, even in connection with crops quite largely exported. Accordingly Mr. Hyde considered it a happy augury that Congress was then discussing a tariff bill to provide substantial increases in the duties on many agricultural products. He maintained that agriculture benefited substantially from the existing duties, especially those on flax, cane and beet sugar, fruit, beef cattle, sheep and wool, and dairy products, but could use additional protection. He mentioned wheat, corn, and even cotton as commodities on which tariff protection could be measurably beneficial. This was a clear foreshadowing of relative self-containment.

It was in Mr. Hyde's term of office that the Federal Farm Board got going, in weather stormy from the world depression. What it tried was well beyond though still rooted in the tariff; the tariff was the lever and the inspiration, as tariffs have been subsequently of more ambitious attempts on the part of governments to control prices and direct the course of trade. All such operations presuppose the tariff; in its absence they could not work, since goods would flow in from abroad. As a conservative in the use of tariff powers, Mr. Hyde did not wholly approve the new development, with its government storage and attempted price controls. He preferred only indirect price fixing; held that within the tariff competition should be free. The Federal Farm Board sought direct price fixing through large-scale Government storage of supplies and the use of price-supporting loans.

This was a startling innovation. Moreover, it had bad luck. Supplies mounted, while consumption declined in the depression years; soon the Board ran up losses. Yet its partial failure did not kill or even scotch the principle involved. Within a very few years it was in full swing again on broader lines, under the Agricultural Adjustment Administration, with counterparts throughout the world. Our Agricultural Adjustment Acts borrowed heavily from Farm Board methods, and worked with features added which the Board itself had recommended. Under the pressure of necessity Mr. Hyde found himself sponsoring something revolutionary, at least in its potentialities, something wholly incompatible with conservative tradition. He was watching a cloud, no bigger than a man's hand, that was destined very soon, as it joined with similar clouds engendered elsewhere, to overspread the sky.

Henry A. Wallace, who was Secretary of Agriculture from 1933 to 1940, expressed a dualism about the tariff. In the Republican

period this duality had been latent; or rather, the contradiction had been partly reconciled. Farmers wanted export trade; they knew that ordinary tariffs do not help the export crops. They realized that when a country has an exportable surplus of a commodity or of a group of commodities from year to year, the prices received for the export surplus tend normally to determine the prices obtainable for the domestic supply as well. But they saw an escape from this dilemma—tariff equality for agriculture; not a general tariff lowering, so that nonfarm prices would come down, too, but merely an artificial segregation of export surpluses from domestic supplies. This procedure, they held, would leave industry's position unimpaired, and improve agriculture's position. Henry A. Wallace held more complicated views. He was something of a low-tariff man. Our excessively high tariffs, he said, did not help farmers, pushed us toward economic isolation, and forced other countries into that position. Moreover, such tariffs did not square with our creditor status. Like Mr. Hyde, however, though in another setting, he had to sponsor moves he did not wholly relish. As a convinced internationalist, Mr. Wallace had to manage programs that looked toward economic isolation; he wanted lower tariffs and had to manage higher ones or the equivalent thereof.

Specifically, Mr. Wallace had to administer an Agricultural Adjustment Administration plan, with tariff underpinning, for protecting agriculture from world shocks. Crop limitations, marketing quotas, and price supports lifted the prices of basic crops well above world levels. Surpluses went consequently into storage, rather than into export trade. Duties and quotas restricted imports. Eventually the United States found itself obliged, in order not to lose its export trade entirely, to try export subsidies. Simultaneously, it promoted international commodity agreements, with international agricultural adjustment in view, and consequently with a kind of international tariffism involved. There was a lot of Government control in all this; also much conflict with the theory of the reciprocal trade agreements. It was a far cry from freer trade, as no one knew better than Mr. Wallace himself; yet freer trade was what he chiefly wanted.

In his last annual report as Secretary of Agriculture (Annual Report 1940—p. 4) he pointed out that our national policy in tariff making had been illogical. It had excluded foreign goods and services, though we hoped to retain our export trade. "We found ourselves driven on the one hand toward crop limitation, and on the

other toward subsidizing exports, in part as a result of our own trade policy." This program was a concession to necessity, rather than something desirable in itself. Akin to the economic nationalism that was making havoc abroad, Mr. Wallace believed it should be merged at the first opportunity into a program more likely to favor commerce and build an expanding international economy. Between what he favored and what conditions obliged him to do, no one distinguished more sharply than Mr. Wallace himself. He warned the farmers that under economic nationalism they might have to retire from 40 to 100 million acres of crop land.

In fact Mr. Wallace explained the dilemma clearly and in much detail from the start. Notably he did so in a pamphlet entitled *America Must Choose*, which was published jointly in 1934 by the Foreign Policy Association and the World Peace Foundation. This pamphlet attracted world wide attention; it declared the United States would have to choose between an effort to restore international economic cooperation, and a policy of tightly protected self-sufficiency. Already the country had entered the second of these paths with Mr. Wallace himself in charge of an important big experiment. He hoped for a change. He said in the pamphlet (p. 2) that his own bias was toward the international solution. "At the same time," he added, "we must recognize as realities that the world is ablaze with nationalistic feeling, and that with our own tariff impediments it is highly unlikely we shall move in an international direction very fast in the next few years. Therefore we must push with the greatest possible vigor our retreat from surplus acres. . . . " Temporarily the lesser of two evils, this was nevertheless an evil.

As we know, the retreat from surplus acres continued, though with only partial success in balancing supplies with demand. Accordingly, the Government took quantities of cotton, wheat, corn, and tobacco into storage, at loan rates well above the world-price level. Necessarily, it had to protect the supported prices, not merely with tariffs but also with more rigorous control of imports. Our program was helping our competitors enough already, without letting them send their goods in here. Essentially, with mainly the addition of crop control, this was the old McNary-Haugen way of making the tariff effective for agriculture. It had legal warrant in the Agricultural Adjustment Act, which embodied the famous domestic allotment principle, admittedly a tariff principle, whereby exports were to be separated from supplies for domestic consump-

tion, and either promptly shipped or stored, so that at least the domestic supplies would have tariff protection. Mr. Wallace spoke out clearly as to what this meant. It was a concession to necessity. It meant less, not more, foreign trade. Regaining foreign markets ultimately, he implied, would require tariff adjustments downward, possibly on some farm as well as nonfarm goods. "The Foreign demand," he said in *America Must Choose* (p. 32), "will vary with the facilities we afford other nations to send us goods in exchange—that is to say (by) how much we dare lower tariffs. Plainly, the farm retreat ties up with our tariff policy. . . . "

This linkage, which Mr. Wallace was the first to point out, implied that things would get worse or better. It meant that the nations would either draw in their trade and push out their guns, or see the folly of this proceeding and do the opposite. Our own procedure, the result partly of domestic inequalities and partly of trade difficulties left by World War I, was a mere fighting of fire with fire, in no way permanently constructive. It was a use of tariff measures, with radical innovations, as a remedy for tariff evils, and was bound to drive us deeper into self-containment. It was destined, in other words, to multiply trade barriers, not only here but in other countries, since in tariff matters no country acts alone.

Our withdrawal from trade competition abroad, as already mentioned, was urging us toward the use of export subsidies. It was impossible, beyond a certain point, to keep our export stocks locked up. After taking them off the foreign market through storage combined with special price supports, we had inconsistently to offer them abroad at lower rates, in a manner that invited retaliatory dumping. The answer to dumping, of course, is higher and yet higher trade barriers. Against our long-run interest we were actually if not deliberately fomenting economic warfare, before we had need of that expedient. Hence, in doing what the short-run need required, Mr. Wallace did not call it good. On the contrary, he emphasized the importance of letting world trade flow again, even at the cost of drastic changes in American farm and factory policy.

Eventually we chose or rather drifted into economic nationalism. Probably the historians of the future will say we had no alternative. True, we had been first with some nationalistic moves, such as the program for making the tariff work on farm goods; but perhaps, if other countries had been cooperative, we would have scrapped it in favor of international trade expansion. In certain other countries, however, the question had ceased to be a purely economic

one and had become largely military. The Axis countries, in Thorstein Veblen's phrase, had resorted to economic self-mutilization, as training or preparation for the greater economic mutilization that war involves. With war brewing, the American policy reciprocally took on political implications. It became largely the reflex or counterpart of economic policy abroad, and as such was beyond the sphere of independent choice. Our trade with Germany, for example, had droppped so much that a retreat from surplus acres was necessary on that account alone, quite apart from the extent to which Germany's policy was forcing other European countries into economic isolation. Henry A. Wallace saw the political implications. In *America Must Choose* (p. 19) he said, "There are many who think that sooner or later the pressure will be bound to blow itself off in another orgy of human killing." He saw the contradiction involved in modern tariff policy. Evolved into a world process toward isolation, it was embroiling the nations more than ever, and hurling them at one another's throats.

Nor are we at the end of our tariff contradictions. The war emphasizes new ones. For example, the recent international food conference at Hot Springs, Virginia, drew attention to the imperative need of freer international trade, and at the same time emphasized the importance of more industrialization in undeveloped countries. Food is scarce in many countries largely because too many people try to live upon the land. Condemned to work on tiny plots and to farm without proper seed, tools, or transport, they cannot make the land produce as it should. Part of the remedy is more industrialization in these countries, so that land crowding may decline, farms may be increased in average size, and nonfarm work may provide farmers with both a market and a nearby source of machinery and other essential farm supplies. But certain crowded agricultural countries want to know how they can become industrial without tariffs for their infant industries.

Even well developed, highly efficient countries seem to think they will need a postwar chance to put their house in order with various protective measures. They still have a use for tariffs. One of Norway's delegates to the food conference, for example, pointed out that Norway's manufacturing industries, when they are at last able to produce again, will meet with strong competition from the industries of countries whose facilities have been less impaired. He saw the necessity for some planned economic action in the national and international field which would make it possible for the devas-

tated manufacturing industries of the devastated countries to rise again, and he added that Norway after the war will need certain tariffs "for purely fiscal reasons as in the past." The war may destroy some trade barriers, but it will also build some new ones. It is not to be expected just because the Atlantic Charter exists that tariffs will disappear. More to the point is the question how they may be adjusted in their modern complicated form, to promote trade expansion rather than trade restriction.

Representatives of several Latin American countries, at a gathering held in Washington shortly after the food conference, mentioned the place tariff protection would have to occupy in the upbuilding of their youthful industries. They were quite insistent that it will be indispensable to them. Some evidence developed at the conference that the advanced industrial countries will assist the industrial development of the others with supplies, plant, technicians and credit. It seems inevitable that tariff protection for the undeveloped countries will play a part in this development. The infant industry idea still flourishes. Still another poser has got no asnwer. If the developed industrial countries nurse along the backward ones, what will they do themselves for a market when the latter grow up industrially? Go in for more farming and less population? Some critics saw here a new future possibility of self-containment, though with a breathing spell first for trade expansion. On the whole, the current discussion raises more questions than it answers in the tariff field, many of them agricultural questions.

Experience with international commodity agreements reveals a tariff contradiction. These agreements seek more world trade through tariff means. This anomaly arises fom the fact that the international commodity agreement is often simply the extension of crop control, price stabilization, and regulated marketing to many countries simultaneously. Like the parent national form of agricultural adjustment, it depends upon the tariff principle; in other words it creates an area of firm trade regulation. Typical is the international wheat agreement signed in 1942, with Argentina, Australia, Canada, the United Kingdom, and the United States as the first signatories; it provides for the use of wheat in post-war relief, and also contemplates control of wheat production, exports, imports, stocks, and prices—the familiar tariff proliferation. How can this develop freer international trade, along the lines of the Atlantic Charter? It may develop more, but not freer commerce among the nations. This is a real tariff poser.

The wheat agreement and kindred schemes allow and invite the adherence of additional countries, but of course only if they obey the collectively determined rules. Countries that want to stay outside and to produce and ship unrestrictedly will find themselves up against the combination, whose power will be essentially an extension of the tariff power, an expression of the total governmental power of the signatory countries to control supply, marketing, and prices by law and regulations. Conceivably, this power can promote abundance rather than scarcity, and can be fair to consumers and producers. In fact unless it does it will eventually collapse. But it is not initially a move toward lessened trade regulation, still less toward a laissez-faire trade field open to all comers without restrictions. The international commodity agreement means controlled, not uncontrolled, world trade. This is not a criticism of the international commodity agreement principle, but simply a notice of its kinship with the tariff. Perhaps it starts the tariff toward reform; but it keeps the principle.

Opinion at the Hot Springs Conference strongly approved international commodity agreements. Appraisal of the record left a heavy balance in their favor. It seemed to be the consensus, as one delegate expressed the matter, that by and large the wheat, sugar, tea, coffee, and other international commodity agreements had kept prices not too low for efficient producers and not too high for consumers, and had also liquidated excessive old stocks and prevented dangerous accumulation of new supplies. Moreover, the agreements had taught competitors to cooperate. But they had done so through governmental regulations as to imports and exports, buffer stocks, production, and prices. Such failures as the story held were chargeable either to nonfulfilment of the regulations, or to the lack of sufficiently exacting ones. It pointed to the need of more rather than fewer controls, and underlined the drift toward the modern form of the tariff idea. Plans for international commodity agreements should not ignore their tariff base.

Extension of the commodity agreement system could coincide, as Sir Raymond Streat, chairman of the British Cotton Board maintained in a speech at Liverpool on November 25, 1942, with a general lowering of trade restrictions on a broad miscellaneous list of goods. It still would pose the problem of running post-war world trade partly under and partly not under extensive intergovernmental regulation, and would be confusing to both the Protectionist and the Free Trade schools. The problem has special urgency

for the United States. Our agriculture works from top to bottom now on governmental programs, which must mesh with similar programs abroad or be changed if we want to do an export trade. How to manage this so that world trade may increase may be our post-war problem No. 1. Operation of international commodity agreements does not automatically condemn the world to trade restriction; but the technique of making sure that it doesn't has not yet been developed, perhaps partly because we shrink from acknowledging its tariff nature.

The evolution of our tariff theory, with special reference to its bearing upon agriculture, needs further analysis and recording. Its current phase the most exciting and portentous yet, the phase that possibly foreshadows planned international trade, has left no mark, or only a faint one. Farmers should pick up where they left off; they have seen ahead of other folk that the modern growth of economic nationalism, with its production, price, and trade controls, is essentially the tariff in modern dress—the logical development of the power the tariff always had to shape and guide the economic life. As noted they have led in movements to expand this application of the tariff power, so that now the branches often hide the trunk. Out of nationalism comes internationalism in one form or another. But farmers have not seen all or even many of the international implications; nor in the last few busy years, have farm spokesmen, farm legislators, and farm agency officials. These men have kept so quiet that we must infer they do not see the connection between what is brewing now and their old time tariff thinking.

Action runs ahead of thought. Even the old vocabulary hangs on, with much talk still of hoary opposites such as free trade versus protection. Practically, farm people dwell on middle courses, not on outright blacks and whites; but they fail to realize that even middle courses lean one way or the other, either toward or away from more Government control of international trade. In short, they do not sufficiently consider trends. Tariff powers often promote competitive scarcity, and boost prices at the expense of production. Can we manage them, when the fighting stops, so as to promote abundance instead? Can restrictive measures, such as producers ask for the sake of higher prices, be exchanged for stimulants to production and consumption? Can a country keep its prices above world levels and still do business with the world? Can the developed industrial countries, without damage to themselves, promote industrial

progress in the undeveloped ones, through toleration of moderate protectionism there combined with a liberal import program of their own? These are the modern issues that arise in connection with tariff policies, but agricultural thinking has not caught up with them. Time spent upon them now could be time well spent; but the discussion continues on outmoded lines.

Somebody, perhaps the original author, should write a sequel to *America Must Choose*. True, the choice now cannot be America's alone. Since *America Must Choose* appeared, this country has gone far toward economic isolation, with only the wartime (noncommercial) interlude called Lend-Lease. It has done so, however, in step with almost all the world, and cannot change the policy on an independent basis. But first we must agree among ourselves. Someone must explain what it will ultimately cost in terms of altered tariffs, altered prices, and altered trade arrangements, to re-mesh our business with that of Europe and the Orient. On the other hand we must know what continued economic isolation will involve, in loss of exports and in lowered American standards of living, since even a country as rich as ours has no monopoly of comparative advantages. It won't be enough for the sequel to pick up where the original pamphlet left off; too much has happened since to make the choice both more difficult and more vital. Though we have not been watching the change, because the war covers it up, the tariff problem has been taking on new aspects, which positively guarantee it a long new lease of life.

Farm leaders and farmers should resume the discussion; letting the blank continue in the record can be dangerous. What Clausewitz said about war being the continuation of policy by other means has an obvious reverse application, which at present we neglect. Peace is the continuation, by non-military means, of war policy; in other words, it is the chance to realize war objectives, in terms of production, trade, and social purpose. Tariff policy will have a part to play when this war ends, whether the world elects for relatively high or relatively low tariff duties. The balance between the government and the individual will hang on the decision; for if we have a very complicated post-war tariff structure, we shall have a corresponding public management of production, prices, and marketing. Without preliminary discussion, agriculture will sail blindfold into this. When the time comes to start doing business with the world again, it won't know how.

Essentially, the problem for the United States is how tariff's powers should be used, along with their appurtenant price-supports and complementary import controls, to give our production the most desirable shape. Each step in our adjustment to the war wrests our crop and livestock pattern away from the form it needs for peacetime operation, and should be considered incomplete without a corresponding planned correction for the post-war years. Giving effect to the correction program, when the time comes to do so, will be very largely a tariff-managing job—an effort to synchronize our agriculture with industry and farming elsewhere through international arrangements for international trade. Contrary to a popular impression, the tariff question has not taken a back seat, but forged to the front, and the lull in the discussion is out of harmony with its tremendous importance. Agriculture pioneered in tariff theory in the 1920's, and might usefully do the same again, with more attention this time to the world-wide implications.

Scores of concrete issues offer a starting point. Shall we favor synthetic or natural rubber? Shall we resume normal imports of sugar, oil-seeds, and other tropical and semi-tropical products? Shall we revert to the old, or seek a differently composed type of agricultural export trade? Shall we do a competitive or a subsidized foreign trade in cotton, wheat, and tobacco? Or on the other hand shall we abandon comparative advantage, withdraw into our borders, and grow many things at high cost which we could import cheaply? All these questions, and many others in post-war planning, have tariff angles, as indeed our entire farm program has. It will be necessary, when the fighting stops, to be ready with an answer to the fundamental tariff question—whether we should or should not hold our prices above the world level. Every bone will crack when the straitjacket of the war comes off, and doubtless we shall need a mould strengthener or protective framework of some kind. But if we don't look well to the matter in advance, we may choose a rigid rather than an elastic one. Obviously, the decision will turn largely on the faith or lack of faith we have in the chance to build a world community; but it will be a tariff decision just the same. Tariff talk should, consequently, not be dropped, but should be pushed for the duration.

TRANSITION READJUSTMENTS IN AGRICULTURE*

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THE post-war prosperity and performance of agriculture is dependent in very large part on what happens in other parts of the economy. Whether agriculture will again experience a price collapse like that of 1920, followed by two decades of fairly chronic depression, or whether it will be the recipient of a strong demand for farm products, will depend upon employment, business, world commerce, fiscal and monetary considerations, and not primarily upon what agriculture does nor upon specific farm programs designed to rebuild soils, to refill the nation's granaries, to subsidize food consumption, and to support farm prices. Nor will the continuation of parity payments, no matter how grand the scale, give agriculture a favorable economic climate in which to adjust and produce for peacetime consumption.

Because of the marked dependency of American agriculture upon what happens to the entire economy, there is little to be gained from discussing the post-war problems of agriculture in themselves separately and in isolation. The major problem involved in making the conversion from war to peace is common to both farm and nonfarm people. It entails the transition of the political economy as a whole from its contribution to a total war over to a non-war basis. The transition of agriculture is merely one of the many minor post-war problems. None of these minor problems, including that of agriculture, can be managed adequately until and unless the political economy as a whole is gotten over onto a peacetime basis in a healthy and vigorous condition.

Agriculture cannot create its own prosperity. It cannot isolate itself from the effects of industrial unemployment. The rise and fall of farm income depends upon what the rest of the economy does. Politically, agriculture is decidedly more powerful than it is important in the more strictly economic sphere. Farm people, therefore may contribute substantially to important political decisions affecting the course of our economy. On the production, consumption, and income side, however, agriculture is only one of the cars coupled together in a long train. Reshuffling the contents of the

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car labeled, "agriculture," will not change the load or speed of the train appreciably. The big post-war question is: How can this train as a whole be reloaded, rerouted, and switched onto other tracks. Are we to put it back doing the same job, using the same time schedule on which this train operated prior to 1940? We might try but it will not be possible, and if it were it would certainly be undesirable.

What are some of the post-war likelihoods in our national and international economy? Most of the basic issues likely to arise are institutional in nature, the main determinants being attitudes, working rules, and administrative machinery. The availability of resources will be a secondary factor in determining the limits of production. We are likely to have more human agents skilled and willing to work, more raw materials, more manufacturing capacity, and also more farms and food than we will know how to use. Certainly the over-all economic climate will be markedly different from that we have been experiencing during the war, with its expansionistic tendencies, which has again placed the availability of resources in a key position. We will be back struggling with many of the old problems which we were far from solving in the decade prior to this war.

What Can Be Expected?

1. *In Foreign Trade.* One of the things which we all expect war to do is to disrupt and upset foreign trade. There are blockades and counterblockades. Commerce can move only at great risk; foreign exchanges break down; credits are frozen; price levels get badly out of line; and there is forced liquidation of foreign investments. The most favored nation principle becomes an anachronism. Nevertheless, it is a fact that both during World War I and again this time the foreign trade of the United States has developed and flourished. Moreover, both our imports and exports of the war periods probably have reflected the comparative cost structure of this country better than did the trade in which we were engaged during the inter-war period. In other words, the foreign trade of the U. S., carried on during the war, has made economic sense in the use of world resources, at least those resources accessible to us. We have not only made way for imports but we have gone after them, urgently imploring our neighbors to produce the things in which they excel, which after all is the test whether or not foreign trade adds to the wealth of a nation. For example, instead of block-

ing every effort of Canada and Mexico to sell in our market, as we have persistently done during peacetime, we have wanted so much from these countries, and from others, also, that they have found it necessary to protect themselves from our high prices and from what appears to them to be insatiable demands. About the same thing has happened on the export side.

This experience is not cited for the purpose of implying that war does not wreck our peacetime international machinery for carrying on foreign trade. There is a lesson in this experience, however, which needs to be noted. An expanding economy, which the war has begot, has the capacity to overcome the many and sundry trade barriers strangling foreign trade. On the other hand, a contracting or stagnant economy, such as prevailed during much of the inter-war period, gives rise to political attitudes favoring protectionism and thus to trade barriers isolating the national economy. From this we might infer the following: the ability to export and the willingness to import are enhanced greatly when we attain a vigorously expanding economy. It is this lesson which I believe is implicit in our foreign trade experiences of this and also of the other war.

Several important sectors of American agriculture are still geared into foreign trade—on the export side, notably cotton. What is the likelihood that international trade relations will be better after the war than they were during pre-war years? The outlook is not an assuring one even if the plans for monetary stabilization now under discussion are adopted and some form of international bank is established. These arrangements in themselves will not solve the main difficulties inherent in our international trade position.

The fundamental underlying problem can be put quite simply: *The United States has the productive capacity to earn very large credits abroad through the export of those goods and services in which it excels; but the United States has failed to work out a procedure for absorbing and using these foreign credits.* We have tried various expedients—private loans, imports of gold, public loans, and lend lease. None of these, however, tackle the underlying maladjustments. These devices have been merely means for cancelling our credits without any value received—a crude way of balancing our books with other countries. We have failed in developing an equilibrating procedure for keeping our economy in balance with that of other trading nations.

Nor will either one of the proposed monetary stabilization plans accomplish this end. Both plans would create a fairly large block of international credits furnished primarily by this country, and until our contribution is exhausted there will be available dollar exchange. But no one has suggested any workable procedure for maintaining the necessary volume of dollar exchange except the implied one that more United States credit be extended to the international stabilization authority. Until we are ready to convert our export surpluses into foreign investments or accept them in the form of goods and services, the source of dollar exchange will continue to dry up with the result that customers from abroad will be unable to acquire the dollars with which to enter our markets.

In the immediate postwar period this country will undoubtedly continue lend-lease arrangements to make available to various peoples of the world who are in dire need, substantial volumes of food. The United States also might decide to make dollar exchange available in substantial amounts for rehabilitation and for other purposes. It may do this by underwriting some monetary stabilization plan and an international bank. Such steps would further facilitate United States exports. All of these measures are, however, in the category of expedients; they do not resolve the basic difficulties inherent in our trading position.

Consequently, sooner or later we will come up against the whole unsolved problem, one that has plagued us ever since we became a major credit-creating economy, namely, the failure of the United States to use the credits which our exports earn for us. This is the prospect as I see it. Should it materialize, it will confront American agriculture with essentially the same adverse conditions in the sphere of international trade as those that burdened our export economy, including that of agriculture, prior to the war.

2. *In Domestic Production.* We now realize how great was the unemployment of the 'thirties. Those who had made estimates of our capacity to produce missed the mark widely. No one, I dare say, had a full appreciation of the tremendous amount of slack that existed in our economy. The war cracked the stagnation to which we had become resigned. The expansion occasioned by the war picked us up and gave us a new horizon with new and broad vistas. We now know the potentialities of our economy as we could not have fathomed them prior to the war.

But what use will be made of this insight when we have the op-

portunity and the task to convert back to a peace economy? It might be argued that the attitudes of people have been altered by this experience. They have seen and experienced what can be done; they have tasted the fruits of a high level of employment and productivity; they will not be nearly as willing to accept the mass unemployment that had become chronic during the 'thirties.

The dictum, often expressed these days, that mass unemployment must not reoccur, may well reflect this change in attitude. But to what extent are we wise in banking on this dictum as a goal that will be attained? What are the prospects? Agriculture certainly has a big stake in this objective. If it is attained, agricultural affairs become manageable. In fact, most of the major farm problems of the inter-war period tend to disappear. The agricultural dislocations occasioned by the war could be readily corrected in an economy with a high level of industrial activity and employment.

There is much optimism abroad. There is an all too common assumption that we are likely to make the transition and come out of it with a high level of employment and productivity. Business groups are discussing post-war plans whereby private enterprise will facilitate the conversion and be responsible in large measure for the attainment of what is in substance full employment. A number of economists have also struck an optimistic note by pointing out that there is accumulating a large volume of deferred demands —the desire for goods coupled with the necessary purchasing power to pay for them.

I frankly don't see in any of this the institutional conditions that are necessary to avoid mass unemployment, to be specific, to avoid having five million or more people in this country involuntarily unemployed. The real test should be put positively, namely, whether we succeed in maintaining a level of production which will leave us with less than two million unemployed. It is true that we might in the immediate postwar period have a very strong demand, in fact, too strong for the limited amount of goods then available—a situation that would start us off with a boom and still more inflation. Consumers will have accumulated demand deposits, securities, some property, and paid off debts. Many of them will want consumer durables. Corporations will have the assets and liquidity to expand production as rapidly as it is technically possible to do so. Inventories will be low; export demands may continue large.

But there is nothing in this situation or the circumstances asso-

ciated with it to keep the economy from starting on a downward spiral once the early postwar "boomlet" has spent itself. Certainly there is nothing in the way consumers make expenditures or firms make capital investments and build inventories to support the belief that we will avoid mass unemployment.

The main burden of first getting and then keeping the postwar economy on an even keel while moving full speed ahead must of necessity fall upon government and primarily upon its fiscal and monetary authorities. The outlook that our government will be ready to perform in this sphere is anything but satisfactory. We are at present wholly unprepared to deal in a comprehensive and competent manner with fiscal and monetary matters. No federal authority has major responsibility. These functions are vested in a number of federal agencies. There is no necessary unity either in policy or administration. Consequently, the government is not prepared to swing into action. The legislative and executive branches have not developed either policy or administrative machinery necessary to cope with postwar depressions.

Transition Adjustments Confronting Agriculture

The two primary conditions for a prosperous and tractable agriculture are (1) a high level of industrial production (with high employment and income), and (2) an active and healthy foreign trade. The war economy has satisfied both of these conditions, and they may well prevail during the early postwar period while industry makes its conversion and while agriculture continues wartime production for exports to meet relief needs.

The real and important transition adjustments that will be required of agriculture will accordingly come after the relief period, and it might well be at a time when the rate of business activity has started to slacken and exports start to decline when food shipments for relief will no longer be a factor. Under these conditions, to contemplate the worst and which appears to me most likely, agriculture would be confronted with the necessity of shifting from a war to a non-war basis at the *very time* when neither of the two conditions most essential to its economic wellbeing are fulfilled.

Should this occur, American agriculture would be back struggling with the same old problems that held the stage during the prewar years—surpluses, low prices, and depressed incomes. Moreover, under such circumstances the likelihood is that the same old

batch of "rescue" programs will be revived and used in an attempt to relieve and help agriculture. Because this is likely to happen, I propose to discuss briefly the limitations of the farm policies and programs which were evolved during the inter-war period to determine how appropriate they are for dealing with postwar agriculture. Accordingly, I shall focus upon the means, the administrative machinery for pricing, storing, conserving and subsidizing.

1. *In Farm Prices.* Farm prices are by all odds the most powerful and pervasive technique for directing agricultural production, including the shifts in the use of resources that will be required in the postwar period, transferring, for example, resources away from hogs to dairy, from butter to whole milk, from wheat to other crops, to fallow, and into grazing land, from corn and soybeans to crops which are more conserving of soil, and other shifts of this nature.

The price relationship which the parity formula seeks to establish among crops and livestock products has been the greatest obstacle to the development of an adequate food program during the war. It is likely also to be the main barrier to a sound price policy for farm products in the postwar period. Parity prices as defined in farm legislation are wholly obsolete, backward looking, and inappropriate criteria for determining the price relationships between farm commodities. While it is neither possible nor necessary to formulate at this time the price relationships that will be appropriate in the postwar period, it is possible to lay down the principles that should determine farm prices. It is the function of farm prices to guide and direct the use of agricultural resources. To do this, farm prices must be forward-looking; they must reflect the food situation in prospect, the expected demands and supplies which represent food needs and the capacity of agriculture to produce. It is not the function of farm prices to maintain the status quo of farmers' prices or incomes; nor to maintain food prices to consumers at a given level. Farm prices are not an appropriate means for maintaining a given distribution of farm income except as this occurs coincidental with the better use of agricultural resources. To do the job of production, farm prices cannot be a static; they cannot be governed by the dead hand of past price relationships. To make them historical is to destroy their usefulness as a means for directing agricultural production.

I would like to see us move towards a system of forward prices for agriculture based not on a historical parity formula but upon a set

of production goals which reflect anticipated needs and capacities. This step would return prices to their rightful role. It would return to them that function which they can and have performed, that of inducing the type and volume of production which is demanded. Whether or not it is possible to administer properly a system of forward prices depends chiefly upon political consideration. There is no doubt on this point: They must be managed with both eyes on the public interest and not with the view of appeasing special interest groups.

2. *In Storage Programs.* The storage of farm products is another administrative technique for facilitating certain agricultural adjustments. It may well play a major role in the postwar period because of the leeway that has come as a result of having used most of our accumulated carryovers during the war. Feed stocks will be exceedingly low. The excessively large wheat carryover of recent years will be reduced to small figures. Stocks of low grade and short staple cotton will probably still be excessive when the war ends. There is, however, the hope, in the first year or two after hostility ceases, that through relief much if not most of the carryover of low grade and short staple cotton will be absorbed by other countries. Thus, it now appears that the demands occasioned by the war will have absorbed the large carryovers of farm commodities that had accumulated. Once again, we are privileged to start with what is essentially a clean slate.

Should we return to our prewar storage policy? If we do, it will be merely a matter of a few years until we are back faced with the same difficulties that destroyed the Federal Farm Board and which might well have wrecked the Commodity Credit Corporation had it not been for the war. The basic flaw in our prewar storage program was its dependency upon the parity price formula, which in effect made the CCC program chiefly a price-raising scheme. The basic law creating the CCC is seriously defective in this respect. It makes the parity price formula the determining criterion of administrative action. And since parity substantially overvalues the basic farm commodities on which CCC makes loans, and since the loan rates are based on parity, and since the loans by CCC are nonrecourse, the CCC cannot avoid making essentially the same mistakes that were made by the Federal Farm Board and by the CCC during the prewar years.

Farm storage policy designed to establish any given price relationships between farm products, which is in substance the primary aim of the present CCC law, is bound to fail. This failure, however, is due wholly to the wrong criteria that have been established to direct the operations of the storage program. Inventories of farm stocks have an important role to play. There is no disagreement on the contribution that carryovers can make in compensating for the irregularities in agricultural production. For example, stocks of feed carried from one year to another might well be several times as large as those that were commonly held prior to the ever-normal granary venture. We might be justified in carrying even larger stocks of corn than had accumulated prior to the war, provided they are properly located and their accumulation and release is not dependent upon parity prices but upon the function of such stocks in maintaining a more regular flow of feed for the livestock industry. Similar functional criteria for wheat, cotton and other farm products should be employed and not parity price relationships.

There may also be room for stock piles on the consumption side. Technically, it is now possible to store various foods which would have been impossible five or ten years ago. The cold storage lockers, the development of dehydrated foods and related techniques made this possible. Since one of the major desires of consumers is the availability of a regular flow of foodstuffs, the irregularity on the production side can be counterbalanced, at least in part, by developing storage stocks under the control of consumers. The private financing of these stocks might be supplemented by public loans at particular junctures in order to facilitate a better rate of consumption of foodstuffs. Practically nothing has been done thus far to develop the function of stocks in this sphere.

There is, however, still a larger role for the stocks of farm products. Professor Frank Graham has for some years stressed the possibility and the importance of using raw materials, including many farm products, as a means on the monetary side for compensating the economy for changes in income and demands. Professor Graham advances a proposal which would tie the expansion and contraction of bank credit to a price index of storable raw materials as a means of not only attaining a high level of employment but maintaining it. The orthodoxies of the day have overshadowed Professor Graham's approach. It deserves more attention than it has received.

In any case, the criteria for administering a storage policy designed to serve certain monetary ends of the kind proposed by Professor Graham are not those of the parity price formula. The principles that would have to determine the rate at which stocks are accumulated and, on the other hand, dispersed are those outlined by Professor Graham.

3. *In Soil Conservation.* Public measures for conserving soil resources were given a mighty impetus during the past decade. The public generally and farmers particularly have become much more aware of the seriousness of soil losses. The programs that have been undertaken with the liberal expenditure of public funds have contributed in developing this awareness. Considerable headway has also been made in finding out how to conserve soils. In large part, it has been a matter of trial and error; but out of this experience we have acquired an understanding of the main elements; we have come to distinguish between the technical and the economic problems and to some extent also between the economic and the political.

Prior to the war our main efforts were directed to reduce the acreage of the leading soil-depleting crops. The war made it necessary to change this course and we are now engaged in drawing more heavily on our soil resources by producing more corn, soybeans, wheat, and other soil-depleting crops. As a consequence of the war, we now know that soil conservation practices are flexible, a double-edged device that can cut in two directions. They can be used to develop soils to a higher productivity (as an investment in soil resources), and they can also be employed to convert soil into crops more rapidly by reducing soil productivity (as a disinvestment in soil resources). In other words, it is technically possible not only to add to the "soil bank" but to draw upon the soil assets at varying rates, depending upon the food needs of the country.

Herein lies the significance of conservation as a postwar technique for facilitating certain transitions in agriculture. In the broad it will be desirable to bring the disinvestment process to an end, as soon as relief needs have been adequately covered, and initiate an investment period in soil resources. The rate of investment in soil productivity may be very large, especially if it is desirable to induce investments through public action in order to maintain incomes and high employment. Nevertheless, it will be necessary to take soil conservation out of the "leaf-raking relief stage" and put it on a

more effective and efficient basis. Too little was obtained for the public funds expended in the decade prior to the war. Much of the inefficiency of that period can be charged to experience, but it will be prudent to take advantage of the experience we now have and obtain a much higher return for new expenditures in soil investments.

Unlike price policy and storage programs which must be administered by a central authority, the returns on public funds used for soil conservation are likely to be enhanced substantially by decentralizing the administrative machinery. The soil conservation districts provide this machinery. A system of grants-in-aid to these districts is likely to prove much more effective in terms of what is accomplished than the mass distribution of so-called conservation payments which has characterized the Agricultural Adjustment Administration.

4. *In Subsidies.* Nearly every major farm program enacted during the inter-war period has entailed a large measure of subsidy. The more important subsidies have been: (a) the various parity and conservation payments for which the performance by farmers in restricting production and changing their farm practices has been secondary to the granting of additional income; (b) a part of the Commodity Credit Corporation loans, storage payments and other services which the CCC has provided; (c) the purchases and distribution of surplus commodities, which have helped low income families but which were chiefly designed to raise farm incomes; (d) the payment of indemnities on flour exports and the sale of wheat abroad at a loss; (e) the sale of Commodity Credit-owned wheat to farmers for feed. These are the most important forms through which subsidies have been channeled to farmers.

Subsidies in themselves are not undesirable. It is the manner in which they are allocated and the consequences that flow from their effects that is open to criticism. A large number of farm families receive inadequate incomes. During periods of widespread unemployment in industry and inactive foreign trade the proportion of farm families not receiving even a minimum income becomes very large. Such a situation might occur again in the postwar years. I would contend, however, that it is not possible to administer supplementary incomes by making them a part of the various farm price and production programs as has been done thus far.

In principle, supplementary incomes of farm families should be

based on consumption criteria and not on those inherent in production. Parity payments, conservation payments, and virtually all of the others listed above have been distributed to farmers on the basis of certain production characteristics of the farm. These characteristics bear no relationship to the income needs of farm families. Nor is there any assurance that society will benefit through certain performances on the part of farm families in the use that they put the added income, performances which society has a right to expect when additional income is granted. Certainly we should avoid distributing hundreds of millions of dollars of public funds to farm families in the postwar period without regard to whether or not they are receiving adequate incomes, as we did during the prewar years and are doing now.

Income subsidies may also be viewed from the consumption end. Some of the development associated with the Food Stamp Plan, the milk distribution schemes, and school lunches may be examined and evaluated in terms of what they contribute to low income families and others who require assistance on the nutrition side.

There is even a broader basis for appraising income payments, namely, as a phase of monetary policy. To what extent can income payments from public sources to farmers be made to contribute to the maintenance of demands and a high level of employment?

In Summary. The outlook for agriculture rests primarily on two conditions: (1) the rate of production and employment in industry and (2) the volume of foreign trade. If both of these are high as they are at present and as they are likely to be during the early postwar period, agriculture will prosper and at the same time turn in a good performance; moreover, under these circumstances the transitions that agriculture may be called upon to make in shifting from war requirements to the needs of a peace economy will not be difficult. If mass unemployment occurs and foreign trade dwindles, then agriculture is up against forces which will break farm prices, depress farm incomes, and pile up farm surpluses—regardless of what is done through various farm programs. The shortcomings of prewar federal policies for farm prices, loans and storages, soil conservation and farm subsidies have been discussed briefly and some guiding principles have been outlined.

DISCUSSION BY W. E. GRIMES

Kansas State College

In making adjustments in agriculture, or in any other industry for that matter, the questions of degree and time are highly important. Adjustments start from certain conditions which changes in economic and other relations have made undesirable. Time is required to effect the changes needed. Recognition of the time required to obtain needed changes in agriculture is highly important. Numerous recent programs of the federal government have not worked as those initiating the programs expected because of faulty appraisal of the time required to obtain changes.

Again, changes affecting agriculture may be made at the farm level, in the local community, at the state or regional level and at the national and international level. Doctor Schultz, in his paper, has seen fit to discuss these programs from the level of international relationships as affecting international trade in farm products and the level of national agricultural policies and programs which pertain to agriculture. I find myself in substantial agreement with the views expressed by Doctor Schultz. Consequently, this discussion will be devoted to a portion of the problem of making agricultural adjustments that was not attempted in his paper. This portion of the problem of adjusting agriculture to changed conditions pertains to conditions on farms and in local communities and in the relations of farmers and their families to other people and to the other resources at their command.

The seriousness of the problems of adjusting depends in large measure on the time that may be taken to make the adjustments. Agriculture is a slow-moving industry. It is geared to biological processes which cannot be speeded materially. Consequently, changes in production of products, and particularly livestock and livestock products, come slowly.

Also the seriousness of the problems of adjusting depends on the degree of adjustment that must be made. Great changes can be made in the agriculture of a region or of a nation, and with little if any distress, if the changes are made by slow degrees and over a considerable time. Many such changes have been made in the agriculture of the Mississippi Valley and other regions in the past and often with little, if any, pain to the people concerned.

These facts suggest that anything that can be done to lengthen the time during which adjustments must be made and to lessen the extent of the adjustments that must be made within a comparatively short time will lessen the distress involved in adjusting. There is no question but that the pressure for changes will be great and immediate when hostilities cease and foreign demands for American farm products lessen. Things done between the present and that time may do much to reduce the degree of change necessary within a comparatively short time. This suggests that the foundations can be made at present and in the time intervening between the present and the time when demand for farm products slackens which will be exceptionally helpful in adjusting agriculture to the changes required at that time.

Many, but not all, of these things are matters affecting the individual farm business which can be done by those in charge of that farm business or in cooperation with other people with whom the individual farmer deals. These changes often require little if any action at the national or international level. In brief, they consist of preparing the farm business for the impact of the shock that will come when major readjustments are required. So, attention may well be directed to some of these adjustments which will better prepare farmers and their families for the later adjustments made necessary by slackening of demand for their products.

Many of the painful problems of agriculture following the first world war were the result of excessive debts contracted during or immediately following the war period. These debts were contracted in a period of high prices and repaid or defaulted in a period of much lower prices. When prices were high many farmers increased their debts. So far in this war the reverse has been true and farmers have been paying off debts. This process cannot go too far. The farmer who owns his farm free of debt probably will be dissatisfied when prices fall, but the danger of losing his farm will not be immediate or pressing. The farm tenant, who is free of debt, adjusts to a lower level of prices even more quickly than the owner or the landlord since he is not troubled by real estate taxes and other heavy fixed charges which adjust slowly to a lower level of prices.

Closely associated with this problem of reducing debts is the question of land values. If values of farm real estate boom within the period before major readjustments become necessary, the problem of readjusting will be increased to a great degree. Booming land values and unusually active real estate markets leave behind inflated values and, of greatest concern, excessive debts that are reduced only at great cost in human sacrifices. The avoidance of land booms is one of the important measures that may be taken to prevent the readjustments from being as serious as they otherwise would be. This is much more easily said than done. Land booms are difficult to prevent or to control after they start. However, much can be done through work with farmers and others to acquaint them with the dangers in such an occurrence. The things that can be done most certainly should not go undone.

The problems of farmers will be further complicated in the postwar period by the fact that there are so many things that should be done now but which have to be postponed until after the war period. Machines should be replaced, buildings need major repairs, and other improvements are being postponed. All of these things will need attention and require funds when the war period is concluded. The investment of a good portion of the relatively high incomes of the war period in war bonds to serve as reserves for use later in making these needed replacements in the farm business will do much to lessen the pressure for inflation and to place farmers in a safer position in the after-the-war period. The use of such reserves at that time will lessen the tendency to incur debt which may become burdensome.

If a portion of these reserves are earmarked and then used for improvements in the farm home and for other uses that improve the standards of living of the farmer and his family there will be a check, to some degree, on the tendency to bid up farm real estate prices. Too frequently in past periods of high incomes, much of the increase in incomes has been capitalized into high values of real estate. Through debts, this higher capitalization has served to reduce standards of living among farm peoples. Increased emphasis on reserves to be used to raise standards of living in later periods will serve as a check against the tendency to inflate land values and increase debts to burdensome levels. Some of the war bonds purchased by farmers now should be for the purpose of obtaining modern conveniences in the farm home, a new living-room rug, a more convenient and better equipped kitchen, educational advantages for the farm children, and other similar purposes. The use of these funds for such purposes rather than as a down payment on more land at inflated values will do much to lessen the pain of the adjustments required in the postwar period.

During the war period great emphasis is being placed on the farm garden and other sources of farm produced and consumed foods and other products. The retention of this source of farm income after the war period will place the farm family in a better position to withstand the strain of a price structure that may be seriously adverse to their interests in the postwar period.

The program for soil conservation started on a grand scale, with major emphasis on the expenditure of public funds. In more recent years the emphasis has been on the things which farmers do on their farms as a part of the regular conduct of farming operations. Many of these practices need not have been postponed until after the war. They are an important part of good farming during the war. Farming on the contour, the rotation of crops, the use of relatively small and inexpensive terraces, and other practices tend to conserve the soil and should be continued during the war period. The farmer who has done all that he can to conserve the soil of his farm during war time will not be confronted with so serious soil conservation problems after the war as would be the case if these things were neglected during wartime. He will be in better position to stand the shock of readjustments that must be made as quickly as possible.

These are some of the things that can be done now at the farm level to lay the foundations for the further adjustments needed in the postwar period. In calling attention to them, it is not the intent to question the importance of desirable international relations and freer exchange of goods and services over international boundaries or to question the importance of national agricultural policies and programs. All of these things are important. Desirable action must be taken at all needed levels. The more quickly and the more effectively these things are done, the longer the time during which changes can be made and the less severe the changes that need to be made in a short time. These things will reduce the pain and distress involved in making the inevitable adjustments in the postwar period.

DISCUSSION BY E. A. STARCH

Bureau of Agricultural Economics

Transition problems for agriculture, as Dr. Schultz has said, depend first of all upon other parts of the economy, so agriculture has three things to do—(1) ascertain its function in facilitating a workable international program, (2) take its place in the total economy and play an effective role in the adjustments of the national structure, and (3) evaluate its own strength and weakness for internal adjustments.

From the standpoint of developing ways and means by which the United States can play its role in world affairs, it seems that agriculture has the best facilities of any group in the Nation through which to study the significance of the various choices of national policy. Perhaps it is up to agriculture to lead off in the field of international understanding and thereby create a basis for popular understanding.

In taking its place in the national economy, agriculture must be prepared to produce the needed commodities with ever-increasing efficiency. It must be prepared to point out that it is geared to make a contribution to the national well-being, and that it need not slow down unless forced to do so. A food policy must be approached from the side of consumption and national diet, and every evidence should be brought forward showing how a contented but progressive nation must first of all be well fed. Agriculture can do this just as it gained the acceptance of the idea of proportional income.

Full employment would make a full standard of consumption of food an easy achievement. If, however, as Dr. Schultz has said, we may expect the worst, then I believe that nationally we will be required to inaugurate such interim machinery as is necessary to obtain a high dietary level with its subsequent effect on health and individual efficiency. We have had some experience on this through the Stamp Plan; however, with that experience now behind us, perhaps even better ways can be devised to accomplish the objective of a well fed nation. This principle was being accepted to some degree even before the war and before we realized how much food the country must consume if it is to do a full day's work.

The progress which is being made at the present time by scientists and educators who are interested in nutrition gives me confidence in the belief that as a nation we can establish enough scientific facts on the necessity of being well fed so that it will soon be acceptable to the whole economic body.

Agriculture must stand ready to make food and fibers and oils available to the nation, not on the basis of past history, but on the basis of need, which again is indicated in Dr. Schultz's paper. The idea of proportional income has apparently become an accepted part of our national thinking, and even though our present parity legislation is based historically, it may be possible to adjust the mechanics of arranging for proportional income so that it would be based on need, and that addition needs to be made to the concept as it stands now.

In our third phase—that of evaluating our own strength and weak-

nesses for internal adjustments—we can benefit by the experience of past years.

In viewing the likely composition of our transition pattern, we are apt to base our guesses altogether on experiences of the intra-war period. No doubt a great many of the elements in the mosaic of problems are different. For instance, might we well expect that the short time indebtedness has been reduced from the prewar level rather than increased as it was in the last war? Might we expect that a land boom would be feared by the people rather than giving a feeling that land prices were a measure of well being as we thought in 1919? Have we altered our production pattern definitely from where it was at the end of the last war? At that time we found our problem uppermost in wheat and cotton, which are commodities that are easily stored. How about the present shift to dairy products, eggs, and meat, some of which are highly perishable, and will new processes allow for their storage? The problems resulting from sluggish channels of consumption would be more acute and even more difficult to handle because we have stepped up the production of perishables.

When it comes to balancing production after this war, we do have a very encouraging development in the production goals idea. I believe that a social invention is in the making and that as more and more refinement of method and more development of fact takes place we will have a usable instrument for evolving a production pattern which is geared to our requirements.

The production goals idea—as it is now being developed—is forward looking in that it not only works on the requirements side but also on the effective production side. If these two concepts can be brought completely into balance, and the farmers of the Nation can be adequately brought into the picture in developing the production side, the principle of production goals will be acceptable almost as soon as it has evolved.

A storage policy could be based on the principle of "reserves for use" rather than storage to serve as a stop gap for maladjustment in production. Storage can have so many more fundamental purposes than getting a glut off the market or maintaining a price floor. For instance, previous to the war there was a good deal of discussion which had not yet reached the action stage concerning an ever-normal feed bin. These discussions took place very largely in the Great Plains part of the country where annual production varies greatly and where one of the first essentials is to keep a back-log of feed well distributed throughout the area. Each county should have a back-log in relationship to its annual feed requirements, and the amount of reserves maintained, county by county, should very seldom be allowed to fall below the reserve mark.

Grains in those areas could be stored at a feed price so that when it becomes necessary to redeem the grains the farmer will find that he can get the stuff out of storage at a reasonable price. This concept does not rest so much on a commercial corn or wheat price as it does on a well-maintained distribution of supplies.

The soil of the Nation may be likened to a bank—as Dr. Schultz has done—and I would go even further to say that at some times there

is an investment in soil resources and at other times a withdrawal. I would add that when the rates of withdrawal are high, the rate of deposit may also be high. Even though I realize fully that during the past years we have done an excellent job of investing in soils through grass seedings and other measures which we are now drawing upon, I do not fully subscribe to the view that a high rate of investment is impossible or does not pay during a period of high productivity. I believe that one of the most fruitful channels for increasing the annual withdrawal is to make a high rate of investment even now. True, we are plowing up some fields that have been sown to grasses, but on the other hand if we are to maintain a high level of production we must also very busily devise ways and means of increasing the rate of conservation. This can be done by taking up and incorporating into our present management all past findings in production practices at a greater rate than ever before.

Contrary to public belief this does not always involve a higher in-put of production factors, but sometimes even results in a much greater efficiency of in-put. For instance, contour farming may be thought of as an investment measure for keeping the soil from going down hill, but it conserves enough moisture for an increase in yield, and at the same time there is an actual saving of fuel by having the equipment moving on the level instead of up and down hill.

Rebuilding the agricultural plant after the war can have at least two stages—one of encouraging farmers on moderately depleted lands to rebuild by means such as suggested last night by Dr. Johnson of the University of Missouri, and the other of restoring resources which have depleted—either during or before the war—beyond the point where the ordinary efforts of the family can bring them back into sustained production. In the latter case there could be a system of compensating for the actual amount of improvement. Improvements could be classified into units with each unit earning a given unit of compensation. It would serve as employment for stranded families, and would enable families on farms with low productivity—which has been caused by erosion—to earn their way while they are restoring a segment of resource.

DESIRABLE CHANGES IN THE NATIONAL ECONOMY AFTER THE WAR*

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BEFORE we can answer the question "What are the desirable changes in the economic system" we need to ask two other questions: first, what is the function of the economic system and what tasks is it called upon to perform, and second, in what directions is it failing to fulfil these functions and to perform these tasks. Not until we have a reasonably clear answer to these questions can we hope to judge what changes it is desirable to make.

There seem to be three main functions which an economic system is called up to perform. The first is to ensure a reasonably rapid rate of economic progress. The second is to provide for a reasonable amount of stability, so that extreme booms and depressions are avoided. The third is to provide for equity in the distribution of the product of economic activity. It should be clearly recognized that these three aims are not necessarily compatible—that is to say, they are to some extent alternative goods between which we must choose. Thus it may only be possible to achieve a rapid rate of economic progress at the cost of a certain degree of instability and inequity. Similarly measures taken to distribute the product more justly may result in a check to economic progress or may accentuate instability. As long as these alternatives are clearly recognized, however, they should not present any great difficulty to the policy-maker. Choice between recognized alternatives is the essential characteristic of economic activity, and the problem, for instance, how much progress to sacrifice for an increased degree of stability, is not essentially different from any other judgment of choice, even though it may be more difficult. Dangers are most likely to arise when the alternatives are not recognized as such, and when the policy-maker operates under the illusion that he can have his cake and eat it. Particularly dangerous is the piecemeal method of attempting to solve social and economic problems, for the man who has a single problem to solve frequently does so by creating worse problems that other people have to solve. It is perhaps the principal duty of the social scientist to reveal clearly just

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

where the alternatives lie, for mistakes in social policy arise more from lack of appreciation of the true alternatives involved than from deliberate mischoice.

The economic system consists of three elements: laws, institutions, and individuals. Any discussion of changes in the system must therefore deal with each of these three elements. Change in laws is perhaps the easiest to achieve, though it must always be remembered that the effectiveness of laws depends on the willingness of people to obey and enforce them. Change in institutions comes more slowly—i.e. in the forms and ideals of corporations, trade unions, private businesses, banks, cooperatives, and all the other innumerable organizations that carry on economic activity. Change in the motives and patterns of behaviour of individuals comes most slowly of all, and yet is the most fundamental, for laws and institutions are but the creation and reflection of the character of individuals.

The first, and probably the most important task of the economic system is to permit a rapid rate of economic progress. This is particularly important for poor regions, and as the vast bulk of the world's population still is miserably poor, the problem of progress may not unreasonably be considered the world's number one economic problem. We are apt to be obsessed by the problem of instability in this country and to forget that the business cycle itself is a luxury of rich countries. The world's problem is how to extend the knowledge and practice of our best techniques to the 90 percent or more who do not know or practice them. And lest there are those who balk at world responsibility and feel concerned only for the inhabitants of the United States, it may be pointed out that one quarter to one third of our people live at a standard of life and techniques far below what the existing state of knowledge permits.

The principal conditions which permit rapid progress are (1) Laws which give security in the administration of productive property and in the enjoyment of a reasonable proportion of the fruits of individual change; (2) Institutions which permit of competition, in the narrow sense of the ability of better processes and products to displace the inferior; (3) Individuals with an adventurous disposition, a liking for change and a strong sense of the present value of prospective future benefits.

On the whole the American system has provided these conditions, and consequently has enjoyed over a period of two hundred years or

more an astonishing rate of economic progress. Nevertheless there are certain improvements which might be made and certain dangers to be guarded against. There is little doubt, for instance, that our tenancy laws, particularly in the south, are seriously defective and need modifying in the direction of greater tenant right in security of tenure and in compensation for improvements. We have perhaps concentrated too much on the losing battle to prevent the spread of tenancy, and have not thought sufficiently about methods for rendering it innocuous, or even beneficial. On the negative side there has been an alarming spread in recent years of the doctrine that inferior processes and methods must be protected against the competition of the superior. The anti-chain store measures, for instance, which tax chain stores because they have lower costs than others; the so-called "scientific tariff," which taxes cheaper imports to prevent them from displacing the more expensive home product; even the "parity price" doctrine, which in the hands of some of its advocates would deprive the industrial population of the benefits of any technical progress in agriculture—all these are measures which may be inimical to economic progress, though there may be other justifications for them. More dangerous perhaps than any of these measures is the state of mind which they embody; an attitude that fears change, that seeks security at all costs, forgetting that danger is the price we pay for life and that absolute security exists only in the grave. This is not to say, of course, that we must be utterly ruthless and unconcerned with the human costs of progress. It is a just criticism of our system that the costs of progress are not adequately taken into our accounting. Nevertheless there is a world of difference with the attitude that insists on the "rights" of all established interests, and cares not whether progress be stifled in consequence, and the attitude which would increase the willingness to bear the costs of progress, vicariously if necessary, at the same time that it seeks to distribute the burden of these costs more equitably.

There is a real and a hard choice here between progress and equity, which is nowhere revealed more clearly than in agriculture. In a progressive society the relative importance of agriculture must continually decline, for agriculture produces, on the whole, basic necessities of relatively low income-elasticity. This decline can only be brought about, however, if agriculture is relatively less profitable that industry; capital and labor must be squeezed out of

agriculture and attracted into industry, and there is no way of doing this other than by making agriculture less advantageous, both to capital and labor, than industry. A relatively unprofitable agriculture is a necessary accompaniment of a rapidly progressing society; and the moment when agriculture ceases to be relatively unprofitable will mark the beginning of our economic decline. The only answer to this problem is to hasten by all possible means the movement out of agriculture, for then a very slight inequity will be sufficient to guarantee progress. There is danger, however, that those whose whole energies are directed towards solving the problem of equity in distribution, or those whose personal interests are adversely affected by progress, may try to "freeze" the existing status of agriculture and by means of governmental subsidies make it artificially profitable. If such were the object of the agricultural interest and of its advocates it would indeed be true that no greater menace to the welfare of society could be found than the predominance of the agricultural interest in the political scheme. The history of some European countries—notably France—provides an admirable but depressing illustration of the truth of this proposition.

Closely connected with the problem of progress is that of *stability*. It is in this connection perhaps that the American economy is weakest; its violent fluctuations are too well known to need description. It is probably true that a certain amount of instability is a necessary cost of rapid progress. Progress means adventure; and adventure inevitably leads to mistakes. Minor and local booms and depressions therefore are inevitable in any progressive society; we cannot prevent a boom in a new industry or a decline in a displaced one. But we can prevent *general* inflations and *general* depressions of the type that took place following 1929. The problem here is that of preventing large fluctuations in the aggregate money income of society. This is essentially a responsibility of government; no other institution and no individual is powerful enough to accomplish this task. It can be accomplished through the instrument of the tax system, if the tax system is designed consciously with that end in view, and not regarded simply as a means for financing government expenditures. The deficit-financing school is essentially correct in supposing that budget deficits tend to increase money incomes and budget surpluses to decrease them. When money incomes are declining, therefore, this decline can be offset by a suit-

able budget deficit, and when money incomes are increasing this can be offset by a budget surplus. The mistake of the New Deal was to treat government *expenditures* as the most variable item. It would be much better to set the level and kinds of government expenditure by rather long-run criteria, otherwise we fall into "boon-doggling" and waste. The required deficits or surpluses can then be achieved through appropriate fluctuations in tax rates and government receipts. It should not be impossible to devise a semi-automatic "adjustable tax plan" based on a widespread, deductible-at-source income tax not unlike the arrangement we now have, with the proviso that the rate of tax in each period (month or quarter) should be automatically determined by the *change* in aggregate money income in the preceding period. When money income fell, the tax rate would likewise fall—becoming zero or even negative if it were necessary to counteract a violently deflationary movement. If, on the contrary, money income rose beyond what was considered desirable, the tax rate should rise even more steeply until the inflationary movement was suppressed. Such a plan would not prevent all fluctuations; it would however confine them within relatively harmless limits. There is now no excuse for a repetition of the experience of 1929–32, provided that the people and the politicians can be persuaded to regard the budgetary and tax system as the steering wheel of the system and not as its sheet-anchor. The budget-balancers may then be seen as people who want to keep the steering wheel fixed at all costs, no matter what happens to the car! It may not be impossible to perform this educational task. It is so obvious at the moment that the purpose of taxation is not to "pay for the war" but to prevent inflation, that it should not prove too much of an intellectual step to regard taxes as likewise an instrument for preventing deflation.

There is not time in this short period to discuss at length the problem of equity in distribution. It must suffice to notice that in this connection government has many responsibilities. The distribution of income can be affected directly through the tax system and indirectly through the control of monopolies. The great unresolved problem in this connection is the *criterion* of justice. Most people nowadays would agree that extreme inequalities are undesirable, but there is room for much legitimate disagreement as to how far in the direction of equality we should move. One principle however is clear; that the state has a responsibility to see

that none of its people fall below a certain minimum standard of life. How high this standard should be—whether it should be at the level of bare existence or at some level of "health and decency" is a difficult question, the answer to which must depend largely on the size of aggregate real income and on the amount of that income which is available for distribution. This latter quantity may be termed the "economic surplus"; it is the difference between the total product and the total supply price of all factors of production. Redistribution cannot cut below the level of this economic surplus without destroying production itself. It is highly desirable, therefore, to have a large economic surplus, otherwise the attempt to redistribute wealth may simply result in its destruction. This fact underlines more sharply than ever the importance of economic progress, for there is a real sense in which justice in distribution is a luxury which can only be afforded by rich societies. The economic surplus however depends not only on the total product, but on the willingness of the owners of scarce factors and abilities to put them to work at low prices. This in turn depends on the attitude of individuals towards riches. Justice in distribution perhaps depends more than many have realized on the attitudes of individuals, and there is a vast field for desirable change here. We need many more individuals with a developed "instinct of workmanship" and an atrophied sense of luxury and display. Indeed, a good slogan for the postwar world would be "it's ridiculous to be rich." A social climate in which productivity is honored and extravagance is despised is highly desirable; it is obviously desirable for a "war effort"; it should be equally recognized as desirable for the "peace effort"—the effort to maximize not our powers of destruction but the welfare of all people.

DESIRABLE CHANGES IN THE NATIONAL ECONOMY FOR THE POSTWAR PERIOD*

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IF BY "National Economy" we mean "what goes on in the U.S.A.," and so restate our question as "desirable changes in the U.S.A. in the postwar period," it would cover many things. The problems of shifting from war to peace production will involve great changes both in what is produced and in the kind of jobs at which our workers will be employed. The necessary industrial changes will be far more drastic than the agricultural changes. Workers on farms are now slightly below 1939 numbers. Factory employment today is 125 percent above 1939 levels in durable goods, but only 22 percent above 1939 in non-durable goods. One single group within durable goods, transportation equipment, which includes autos, ships, and airplanes, employs over 5 times as many factory workers as in 1939. In consumer products, like food and clothing, factory employment is up only 8 to 11 percent.

To maintain present employment after the war in producing peace-time goods, millions of workers will have to shift jobs, and thousands of acres of factories must be converted or replaced. The engineering, financial, industrial, educational, rehabilitation, and political problems which will be part of this vast job of reconversion are almost cosmic in their scope and complexity.

If we limit ourselves, however, to those changes in the economic structure of our society which seem needed to aid in meeting postwar problems, we have a topic a shade more appropriate for a luncheon discussion.

The economic problems of the immediate postwar period will be in part a continuation of the wartime problems. Foreign needs will continue high, commodities will continue in scarce though increasing supply, buying power will probably continue to exceed supplies except for limited places or periods, and inflation will still be a danger. Under these conditions the major changes in economic structure will probably be concerned with the letting go of wartime business and economic controls, or of modifying them to meet postwar needs. Ideally, these controls should be demobilized by

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such gradual stages as not to produce new shocks or extreme gyrations in activity or prices, and yet to facilitate as rapid a restoration of peacetime activity as possible. Somewhat similar principles might govern the parallel operations of tapering off war production and demobilizing the armed forces.

TABLE 1. ESTIMATED NUMBER OF FACTORY WAGE EARNERS EMPLOYED, 1939 AND JUNE, 1943, FOR SELECTED INDUSTRIAL GROUPS

Industry	1939	June 1943	Increase	
			Number	Proportion
	(Thousands)	(Thousands)	(Thousands)	(Percent)
All manufacturing	8,192	13,821	5,629	69
Durable goods industries	3,611	8,250	4,639	128
Non-durable goods industries	4,581	5,571	990	22
Selected durable goods:				
Iron and steel and products	991	1,718	727	73
Machinery, incl. electrical	788	1,953	1,165	148
Automobiles	402	676	274	68
Other transp. equipment (incl. ships and planes)	159	2,288	2,129	1,339
Lumber	420	482	62	15
Furniture	328	358	30	9
Stone, clay, and glass products	294	360	66	22
Selected non-durable goods:				
Textile mills and fibers	1,144	1,233	89	8
Clothing	790	850	60	8
Food processing and manufacture	855	953	98	11
Paper and printing	593	651	58	10
Chemicals and allied products	288	741	453	157
Rubber products	121	189	68	56

Source: U. S. Department of Labor, Bureau of Labor Statistics, revised data of February 1943, and Survey of Current Business, September 1943.

The more fundamental changes in economic structure, however, are those permanent changes which will influence the longer-term operation of our economic system as a whole with respect to (1) the levels of employment and physical output, (2) their steadiness at those levels, and (3) the division of activity between private industry and public activity.

Today our industrial production is running at twice the prewar levels, despite the fact that millions of men have been withdrawn from civilian life. After the war, students will go back to school and housewives to their homes, and the returning soldiers will be ready for peacetime jobs. If these soldiers are to be provided use-

ful employment, we will need to keep on turning out as much as, or more than, we are now producing.

The war will leave us with a changed financial picture of almost incalculable consequences. On the one hand, there will be a public debt in the hundreds of billions, requiring several billions annually for debt service. On the other, wartime savings by individuals, business concerns, and financial institutions will aggregate almost an equal amount. These savings may encourage more expenditure from current incomes than prewar, and supply supplementary buying power. This might help provide full markets for all that can be produced for a number of years running, or if unwisely expended, might produce a disastrous postwar inflation.

If and when the stimulating effect of spending these private wartime savings is over, we may face again the old problems of chronic underemployment so prominent in the 1930's, and of unstable and fluctuating activity characterized as the "business cycle." Modern students, especially Keynes and Hansen, agree that chronic underemployment reflects an inability to spend for investment as much as we would save if everyone were fully employed. Spending, saving, and private investment are influenced by (1) the distribution of income between income classes, (2) the customary use of income at various income levels, (3) the decisions of business men and others who put savings into use as private investments, and (4) modifying institutional factors such as taxes. The willingness of the society as a whole to save and to invest at various levels of national income is largely a resultant of these forces.[1]

Remedies proposed for chronic underemployment include (1) changing the original distribution of income by business policies which emphasize lower prices, higher wages, and more reasonable profit levels; (2) redirecting the use of private income by heavy progressive taxation; and (3) the supplementation of private and business expenditures for goods and services by public expenditures based on borrowing or progressive taxation. Efforts along all these lines, together with measures to reduce the insecurity of farm incomes and to strengthen farmers' and workers' bargaining position, did produce a material change in the distribution of income during the 1930's. The proportion of all disposable income which went to

[1] For an attempt to obtain a quantitative statement of these relations, see my articles on Statistical Investigations of Savings, Consumption, and Investment, Parts I and II, *Amer. Econ. Rev.*, Vol. XXXII, March and June, 1942, pp. 22–49 and 272–307.

predominately low-income groups—farmers, wage earners, and relief clients—gradually increased from 73 percent during the period 1929 to 1932, to about 78 percent by the late 1930's. This resulted in more willingness to buy consumers' goods and less pressure to put funds aside in financial institutions. To the extent that income as paid out by private business can be distributed more equally, demand for goods can be maintained without the necessity of direct government spending to provide markets for all the potential output. Under the conditions of the 'thirties, a shift of 5 percentage points in income distribution would be sufficient to reduce by about one-tenth the probable size of the gap between saving and private investment which would exist at full employment in the absence of extraordinary war expenditures.[2]

TABLE 2. RECENT CHANGES IN AGRICULTURAL OUTPUT, EMPLOYMENT, AND REAL INCOME PER WORKER

Year	Number of Workers[1]	Physical Volume of Agricultural Production[2]	Cost of Living on Farms[3]	Output per Worker[4]	Income per Worker Nominal[5]	Real Income per Worker[6]	Ratio of Real Pay to Real Output[7]
	(In thousands)						
1929	11,289	99	159	88	177.3	112	127
1933	11,023	96	108	87	79.0	73	84
1937	10,892	106	128	97	154.4	121	125
1940	10,585	110	121	104	144.0	119	114
1942	10,397	125	154	120	287.4	187	156

Source of data: Bureau of Agricultural Economics.
[1] Average for year of family plus hired workers.
[2] 1935–39=100.
[3] Goods and not services, index of prices paid by farmers, 1910–14=100.
[4] 1935–39=100, production index divided by number of workers×100.
[5] Average net farm income per person engaged in agriculture, 1910–14=100.
[6] 1910–14=100, nominal income index divided by cost of living index×100.
[7] Real income index divided by output per worker index×100.

Higher wages and lower prices, though desirable to widen income distribution, cannot long outrun the productive ability of labor. During the war years, on the contrary, the real buying power of the income received by two special groups in our economy—farmers and factory workers—has increased much more rapidly than has

[2] This estimate is based upon my further studies of the saving-investment balance, using the latest data on gross national product from the Department of Commerce. These studies may be published in the near future, probably in the *American Economic Review*.

their own physical output per worker. (Tables 2 and 3.) Real buying power, of course, is itself of limited significance when the quantity of goods which can be bought at the quoted prices is limited by war restrictions. For our society as a whole, however, production during the war has increased more rapidly than has buying power (Table 4), showing that other groups of workers and income receivers have not fared as well as have farmers and factory employees. It seems unlikely in the postwar period that farmers and factory workers can continue to gain relative to the other groups of workers as rapidly as they have during the war years, and they may find it difficult to fully maintain their present improved income position.

TABLE 3. RECENT CHANGES IN REAL OVER-ALL FACTORY PRODUCTION, EMPLOYMENT, AND REAL WAGES PER WORKER

Year	Employment[1]	Production[2]	Payrolls[3]	Cost of Living[4]	Output per Worker[5]	Pay per Worker Nominal[6]	Real Pay per Worker[7]	Ratio of Real Pay to Output[8]
1929	106.1	110	119.8	122.5	103.7	112.9	92.2	89
1933	73.5	68	54.4	92.4	92.5	74.0	80.1	87
1937	108.7	113	111.2	102.7	104.0	102.3	99.6	96
1940	107.5	124	114.5	100.2	115.3	106.5	106.3	92
May, 1943	168.2	217	313.5	125.1	129.0	186.4	149.0	116

Source: Federal Reserve Bulletin, September 1943, pp. 879–90.
[1] 1939=100 adjusted.
[2] 1935–39=100, total manufactures, adjusted.
[3] 1939=100.
[4] 1935–39=100.
[5] Production index divided by employment index×100.
[6] Payroll index divided by employment index×100.
[7] Nominal pay per worker divided by cost-of-living index×100.
[8] Real pay per worker divided by output per worker×100.

A general overhauling of our tax structure is long overdue, for local, state, and federal taxes. Local taxation, falling largely on property, often is unequitable or even confiscatory, as farmers have long been aware. The shift from a property base to an income base, though well underway in many taxation areas, needs to be greatly speeded up. Regressive taxes, which bear heavily on low-income groups, such as general sales taxes, need to be reduced or eliminated. Federal taxation, on the other hand, also requires re-examination. The present income and profit taxes may need to be so readjusted to retain the progressive elements of heaviest burden

TABLE 4. RECENT CHANGES IN OVER-ALL PRODUCTION, EMPLOYMENT, AND REAL WAGES PER WORKER

Basic Data

Year	Employment[1] (Millions)	All Income Payments[2] (Billions of Dollars)	Cost of Living[3]	Production	
				Industrial Production[4]	Gross National Product (1940 prices)[5]
	(1)	(2)	(3)	(4)	(5)
1929	47.8	82.4	122.5	110	85.5
1933	39.3	46.8	92.4	69	59.7
1937	46.7	72.2	102.7	113	85.3
1940	46.8	75.7	100.2	123	97.0
May, 1943	51.8	133.7	125.1	204	145[5]

Derived Data

Year	Pay Per Worker		Output Per Worker		Ratio of Real Pay to Output			
	Nominal[6]	Real[7]	Based on Ind. Prod.[8]	Based on Gross Natl. Prod.[9]	Based on Ind. Prod.[10]	Based on Gross Natl. Prod.[11]	1929=100	
							Ind. Prod.	Gross Natl. Prod.
	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1929	172.4	140.7	230.1	178.9	61.1	78.6	100	100
1933	119.1	128.9	175.5	151.9	73.4	84.9	120	108
1937	154.6	150.5	242.0	182.7	62.2	82.4	102	105
1940	161.8	161.5	262.8	207.3	61.5	77.9	101	99
May, 1943	258.1	206.3	393.8	279.9	52.4	73.7	86	94

[1] Excluding men in the armed forces. This column is the total of (a) farm employment as estimated by the Bureau of Agricultural Economics and (b) the non-agricultural employment as estimated by the Bureau of Labor Statistics prior to 1941 and by the Bureau of the Census, Current Surveys Division, thereafter.

[2] Survey of Current Business, Feb. 1942, p. 63 and Aug. 1943, p. S-1, May 1943 at annual rate.

[3] Survey of Current Business, Feb. 1942, p. 63 and Aug. 1943, p. S-3, 1935-39 = 100.

[4] Survey of Current Business, Feb. 1942, p. 63 and Aug. 1943, p. S-1, 1935-39 = 100. Federal Reserve Board Combined index unadjusted.

[5] *Markets After the War*, Bureau of Foreign and Domestic Commerce (Washington, D. C., March 1943), p. 10, May 1943, estimated by author.

[6] Col. (2) ÷ Col. (1).

[7] Col. (6) ÷ Col. (3).

[8] Col. (4) ÷ Col. (1).

[9] Col. (5) ÷ Col. (1).

[10] Col. (8) ÷ Col. (7).

[11] Col. (9) ÷ Col. (7).

on those income groups where oversaving is the most likely, and yet not discourage risk-taking by business men nor hinder the access by businesses, small as well as large, to the necessary capital funds. One suggestion in this field is to remove taxes on business profits, on condition that at the same time such profits are currently and fully reflected in personal incomes and so made subject to individual income taxes. Steps in this direction might raise the level of employment through encouraging private investment.

Public fiscal operations, including taxation, borrowing, debt repayment, and spending, have a demonstrable effect on the levels of employment and business activity. The idea is beginning to be generally recognized that these fiscal operations should be definitely planned as a balancing wheel in the economy, and used to supplement the income and employment produced by the operations of private enterprise. If that is to be done most effectively, it will be necessary not only to modify the *character* of these operations as already suggested, but also to make their *timing* much more flexible. At present, tax rates, and to a lesser degree government expenditures, at any one time are determined by legislative action months or even years before. Greater administrative flexibility, so that these fiscal operations can be more closely adjusted to changing economic conditions, is needed to improve the usefulness of fiscal powers.

The presence or absence of monopoly powers also influences the functioning of the economy. Monopoly or monopolistic competition tends to hold profits unduly high and so create a less equal distribution of income. The result is either to increase the volume of chronic unemployment or to raise the volume of *public* fiscal operations necessary to counterbalance the lack of adequate *private* buying power. Steps to limit or reduce the exercise of monopolistic powers therefore will influence the necessary extent of these other operations.

All of these institutional problems have a bearing upon the relative proportions of *private* employment and the employment dependent upon *public* expenditure. If income distribution could be made so equal, by wise business price, wage, and profit policies alone, that demands for goods and services for consumption and capital formation were continuously equal to all that we could produce at full employment, public employment would need to be no larger than that required for carrying on the essential public

activities. To the extent that privately-generated buying power falls below this level, and public agencies have to supplement it by fiscal operations to maintain employment, the proportion of workers employed from public expenditure will be larger and of those employed from direct private expenditures will be smaller. Some persons believe that people can choose what they would like to consume more effectively with dollars than they can choose them through ballots and legislative and administrative processes. Such persons should support the efforts to get such a wide and even distribution of income through the operations of private business as to minimize the range of public activity. Every monopolist who exacts a higher price or profit then would prevail under competition, every businessman who engages in understandings which give his product a favored place in the market, is contributing his bit to the need for public expenditure or public employment.

The discussion to this point has dealt primarily with the forces and institutions which may influence the level around which production and employment will vary. There are also another group of problems concerned with fluctuations around the given level—the "business cycle." There is considerable evidence now that the behavior of business men in expanding or contracting inventories, and of consumers in increasing or decreasing their purchases based on consumer credit, plus the effects of partially independent and self-generating cycles in such durable products as residential housing, ships, and possibly automobiles, have major responsibility for the more or less regularly recurring business cycles. It remains to be seen whether fiscal operations can be handled sufficiently swiftly and sensitively to cancel out these disturbing factors, or whether more direct measures, to produce more stability in the underlying generating situations themselves, will be needed to lessen the severity and frequency of recurring booms and depressions.

In this necessarily brief sketch, it has not been possible to consider a wide range of associated problems. These include the provision of individual security through social insurance, crop insurance, and the like; the maintenance of consumption of low-income groups through school lunches, food stamps, and other special measures; the allocation of public expenditures as between public works of various types, and public services like education or health; and the whole intriguing set of problems in future international economic collaboration, including the creation of new international

bodies like the proposed agricultural or financial organizations to stimulate world-wide production and trade, and the interrelations between freedom from want and freedom from fear. Instead of exploring these specific issues, I have tried merely to indicate some of the basic elements in economic structure and institutions which influence the levels and stability of economic activity, and to suggest some of the directions they may need to be modified in the future if our economic system is to be adequate to develop to the fullest the potentialities which our physical scientists and technologists have placed at our disposal.

PRICE CONTROL AND THE WARTIME PRICING OF FARM PRODUCTS*

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ONE of our most widely read and influential weekly magazines recently featured an article entitled "OPA Need Not Have Failed." The author and the editors of the magazine apparently considered that whether the Office of Price Administration has failed or not was no longer an open question; that OPA had definitely failed. Presumably they also considered that price control has been a failure. Many people will agree with them. Others will disagree, for there are a good many who hold that, all things considered, the price control efforts of the Office of Price Administration have been fairly successful.

Scarcely anyone, however, is really satisfied with the price control we have had. Some are dissatisfied because we have had a considerable degree of price inflation. Others are dissatisfied on the ground that the price of some commodity they have to sell is too low—or that some commodity they have to buy is too high. Still others don't like the methods of price control. Perhaps they don't like rationing, or the questionnaires they have to fill out, or the posting of ceiling prices, or any of a hundred or so other things which go with the methods of price control which have been used. Least of all, perhaps, are the people in OPA itself satisfied with price control.

Some day a history of price control during this war will be written. It may well be that two chapters of such a history will be devoted to the price control efforts of OPA. Chapter 1 might deal with the OPA under Leon Henderson, and Chapter 2 with the OPA under Prentiss Brown. Another possible division of the tale of OPA would be to have one chapter recite its history while it was under the guidance of lawyers and economists, the second chapter to deal with OPA under the control of business men. No matter which division of subject matter the author might decide upon, I have a suggestion for the titles of those two chapters. The titles are short and I think most of you will agree that they are pertinently descriptive. Lest there be any misunderstanding let me hasten to acknowl-

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

edge that these two titles which I am about to suggest are not original with me. They are the titles of the first two chapters of a book which is already in print and may be found in the library of a Chicago theological seminary. Chapter 1 is entitled, "HELL." Chapter 2 on the other hand, is entitled, "HELL CONTINUED."

What are the basic reasons for the dissatisfaction with the way price control has been attempted? This is probably not the place, and certainly there is not the time for me to go into a detailed account of all the difficulties with and the objections to the price controls which have been used by the Office of Price Administration and the other government agencies. Nevertheless, there are a few outstanding problems which we may well consider.

What is the primary function of prices? If this question were asked of one hundred economists by another economist, I suppose that a great variety of answers would be given. Economists would be suspicious of such a simple question being asked them by someone who should know the answer. They would probably give cagey or "tricky" answers to what they considered a "catch" question. But if the question were asked in good faith by someone seeking information, I am sure that there would be great uniformity in the substance of the replies. The replies would be to the effect that the primary function of prices is to regulate production and consumption.

If the primary function of prices is to regulate production and consumption, should it not be the primary purpose of wartime price control to control prices so as to regulate production and consumption in accord with wartime needs? Such however, was not the purpose for which OPA was created. Furthermore, the price controls of OPA and of other government agencies have often hindered rather than helped to regulate production and consumption properly.

According to the Emergency Price Control Act of 1942, a primary objective of the OPA was to stabilize prices. But price stabilization or price *fixing* is not, it is my contention, a proper objective of wartime price policy for agricultural products. The change from a peace time to a wartime economy must involve tremendous shifts in production and in consumption. It also involves tremendous shifts in what I shall term *real* demand—that is, it involves tremendous changes in demand quite aside from those changes brought about by inflationary methods of public finance. These changes in produc-

tion and consumption should be facilitated and the changes in real demand accommodated by proper price control. "Where prices, wages, and other rates need to be regulated, they should be *regulated* not *fixed*. They should be changed in accord with the changing needs of the entire economic structure."[1]

Let me quote from the Emergency Price Control Act itself. " . . . the purposes of this Act are, to stabilize prices and to prevent speculative, unwarranted, and abnormal increases in prices and rents; to eliminate and prevent profiteering, hoarding, manipulation, speculation, and other disruptive practices resulting from abnormal market conditions or scarcities caused by or contributing to the national emergency . . . " Again in the October 2, 1942, amendment to the Act it was provided " . . . the President is authorized and directed . . . to issue a general order stabilizing prices, wages, and salaries, affecting the cost of living; and, except as otherwise provided in this Act, such stabilization shall so far as practicable be on the basis of the levels which existed September 15, 1942."

In order to make my point more specific perhaps it would be well to take an example of commodity in which all of you are interested, yet I presume in which none of you is deeply concerned financially or professionally—the problem of automobile tires. Immediately after the attack on Pearl Harbor, it became evident that we would have a shortage of rubber. As a result, of course, many people began buying tires in anticipation of a shortage. What should have been the price policy to meet this situation? The actual policy adopted was, of course, that of holding down prices. By not allowing a large increase in prices of tires, fortuitous profits of those who manufactured and held stocks of tires were largely avoided. But this policy was not consistent with the need for conserving our tires and our rubber supply in general. In order to conserve tires and rubber, it would have been well if the price of tires had been raised far above the level which prevailed during early December. Of course, some people would have profited from such a rise to higher prices. But what damage would this have done? To the man who had one or two more tires than he would currently use, the rise in price would have been of small importance. On the

[1] E. J. Working, in The Objectives of Economic Control, an essay in Economic Sociology and the Modern World, essays in honor of T. N. Carver, edited by Norman E. Himes (Cambridge, 1935), p. 70.

other hand, to a tire dealer or tire manufacturer who held a large stock of tires, the increase in value would have been very great. But in such cases, other methods of profit control can be used. It would be possible to deal with these high profits merely through the income tax. Perhaps a still better method would have been to apply a sales tax which would make up the difference between the old and the new price. My point is that we ought not to destroy the effectiveness of our price system in controlling production and consumption because we wish to control the income of individuals.[2]

Although the methods of price control which have been used have largely destroyed the effectiveness of prices as a means of guiding consumption of foodstuffs, it is interesting to note that we have in effect set up another price system to take its place. I refer to the point system of rationing. In effect, this amounts to giving individuals a fixed income of ration points. The amount of various foodstuffs consumed is then regulated by adjusting their values in terms of points rather than their values in money. In some cases, it would appear that sellers of foodstuffs have made a very profitable thing out of a combination of a high price and a low point value for their products.

This dual price system involves many complex and baffling problems. Economists have a great background of information, both statistical and nonstatistical, concerning the relationship between prices and consumption—that is, between prices figured in terms of money, and consumption. We know how to forecast fairly well the effect of changes in income upon the consumption of many different products, prices remaining the same. Similarly, we know how to forecast what the effect of changes in prices will be if money incomes remain constant. In all this, however, I refer to prices in terms of money. But what about the relationship between consumption of different food products and prices in terms of points? When the system of point rationing was started last spring, there was no background of experience as to how changes in the point value of different foodstuffs would effect consumption of these foodstuffs. There was no great reservoir of statistical information about people's reaction to point changes. As a result, adjustments of the point prices have necessarily been made on the basis of *a priori* reasoning. It would require an experience of several years of

[2] I do not, of course, argue that the need for rationing or other allocations of tire and rubber supplies would have been obliviated by a better price control.

point rationing in order to obtain a background of statistical information which would provide a reliable basis for knowing what changes in point prices are desirable in order to obtain a given result.

One of the interesting things about this dual system of prices is the interrelationship which is involved in the two sets of prices. An increase in the point price of any product will tend, other things being equal, to cause a decline in the money price of that same product. Similarly, an increase in the money price of a product will tend to bring pressures to bear which will result in a reduction of the point price of a commodity. This statement is, of course, based upon *a priori* reasoning rather than statistical evidence. However, it seems fairly clear that the decline in prices of hogs and cattle from April to August this year was largely the result of the institution of the meat rationing system for consumers. Furthermore, when the Livestock and Meat Council submitted its plan for a "meat management program" last April, it was said, "The attempt of the meat management program should be to bring actual prices under such control that they will not be pressing on ceilings." It was said that when the ability to do this had been demonstrated price ceilings could be eliminated.

Although consumer rationing of meat through a point system tends to act as a partial substitute for a money price system and although it may be so operated as to raise or lower money prices, I cannot agree that such a system will obviate the necessity for a control of money prices so long as we continue a credit inflation.

A system of consumer rationing such as we have had results in an extremely inelastic demand for meat by civilian consumers. Under it, the quantity of meat purchased is very little influenced by price. Conversely, a very small change in the ration allocations may well result in extremely wide variations in prices at which retailers could sell any fixed amount of meat.

Under these conditions, what would keep the retail prices of meat within reasonable limits and prevent them from fluctuating wildly in the absence of price ceilings? In the absence of such ceilings, I believe it would be necessary to provide for stable and reasonable wholesale meat prices and to provide for active competition between retailers for the limited amount of civilian consumer business.

In order to provide for active competition between retailers, it would be essential that each individual retailer be limited in the

amount of meat purchased only by the amount that he sells. Assuming satisfactory wholesale prices, retailers' competition would tend to result in equitable retail prices. But under conditions of "excess" consumer purchasing power and labor shortages, can we count on the effectiveness of retailers' competition?

The problem of wholesale price is different. With demand of civilians and the armed forces almost wholly inelastic, the responsibility for basic determination of wholesale meat price levels from the demand side would lie with the lend-lease purchases. Consequently, the entire wholesale meat price structure would need to be closely tied to prices lend-lease pays for meat. This would involve both making lend-lease business generally available to almost all classes, and providing for effective competition among slaughterers for the business of retailers. The latter would necessitate allowing slaughterers to increase or decrease the volume of their business and would not be consistent with fixing slaughter quotas for individual establishments.

It would be important that those slaughterers filling lend-lease orders should not be in a position to make abnormal profits on that business so as to allow them to sell to retailers at lower prices than could those wholesalers who would not enjoy a similar proportion of lend-lease business. On the other hand, there should be no direct or indirect compulsion upon individuals to take lend-lease business, for this might handicap such suppliers in providing effective competition in selling to retail outlets.

Under this sort of a program, it should, of course, be clearly recognized that the basic responsibility for determining the general level of prices of both meat and livestock would lie with whomever decided upon the prices which would be paid for lend-lease purchases. The relationship between prices of different cuts of meat, regional differentials, etc., would them depend upon the general competitive situation.

Too often the arbitrary nature and lack of flexibility of rationing results in inefficient utilization of resources. I presume there is scarcely a person here who has not made trips by taxi which entailed the use of twice as much gasoline and twice as much tire wear as would have been necessary if he had had sufficient gasoline to use his own car. Not only that, but it required the time of the taxi driver in going twice the distance the passenger went when no time need have been used except the time of the passenger.

Much of the home canning that has been done this year was far less efficient than commercial canning. In many cases, of course, home canning makes use of time which would otherwise have been wasted. In such cases there is no doubt a net gain to the nation. But in other cases, home canning is being done by people who might much better be engaged in other tasks. For example, I know a man who did not work at his trade one day because it was the only way he could get some canning done at the proper time. He later figured up what his canned goods cost him, including the loss of wages on that day. The cost was well over one dollar per quart jar. I suspect that if a careful study were made of absenteeism in war industries for the past summer it would be found that no small part of the time lost was occasioned by the necessity of people doing for themselves tasks which they could not hire done through the market place.

The lack of adaptability of many of our rationing procedures to the infinite variety of individual situations is in direct contrast to the adaptability of a price system. Under a price system whether it be a "money" price system or a "ration point" price system the individual is largely free to make his own decisions to fit his own circumstances. But have we not been too quick to cast aside our money price system rather than to use it for meeting our wartime needs?

Now, of course, the fundamental purpose of the Emergency Price Control Act and of its amendment was to prevent, or to curb, inflation. This was a most worthy purpose and the need was, and still is, urgent. But the powers given to the Office of Price Administration were ill-adapted to this fundamental purpose. The causes of price inflation lie in the inflationary methods which are being used to finance a large part of our war expenditures. So long as these inflationary methods of public finance continue to be practiced, it is too much to expect that price inflation can be halted. Furthermore, any agency charged with the responsibility of preventing inflation, but lacking the power to correct the cause, is sure to be a target for criticism and to be discredited in the eyes of most people.

In this connection, it is only fair to say that the economists of the OPA have not been blind to the difficulties which they face. Thus, I know of one man who was asked early in 1942 to accept a position with that Agency. He hesitated to join the organization for the duration saying "First, I am in some doubt as to whether my train-

ing and experience are such as to fit me for the work. Second, I am convinced that price rises should, in the main, be controlled by appropriate fiscal policies and that methods of direct price control—including rationing—should be of only relatively minor importance in limiting a rise in the general level of prices."

In spite of this, and with his opinion still unchanged, this man accepted the position. Why did he do it? Because he felt that there was an important job to be done and that, while he would not be allowed help to do it in the way it should be done, accepting that job seemed to be the best way in which he could aid in the war effort. It is my opinion that the great majority of the economists in the OPA have never thought that OPA could, with the means available to it, do a satisfactory job of preventing inflation. As one of them once said to me, "All that we can hope to do is to fight an intelligent delaying action." Few people who have not been in OPA can have an adequate realizaton of the complexities of the problems and the difficulties encountered in meeting the problems which confront that organization. The same thing is true of the War Food Administration.

So much for giving a little bit of credit where much credit is due. But I am now primarily concerned with analyzing the needs and methods of wartime price control. There are, in my opinion, two fundamental tasks which price control should accomplish in wartime. The first is that of preventing an inflationary rise of the price level. The second is that of readjusting price relationships so that the necessary readjustments of production and civilian consumption will be facilitated. As I have already indicated, the first of these should be accomplished through the avoidance of monetary and credit inflation. The second, I believe, should be accomplished through the means of direct price control. The most serious difficulties with our wartime price control arise from the fact that the second objective has been largely lost sight of and that the first objective has been attempted through methods of direct price control rather than through proper fiscal policies.

Why is it so important that the main burden of preventing an inflationary rise in the general price level should be bourne by proper fiscal policies? The reason is that the problem is too complicated and the pressures too great for it to be satisfactorily accomplished through direct price control.

If you are to prevent a rising price level through direct price

control, and in spite of inflationary war financing you must control *all* prices. This does not mean merely one price for each commodity. In the case of many commodities, it involves different prices not only for different stages in the marketing process, but also many different prices for different geographical points. In the face of credit inflation, competition cannot be expected to work out satisfactory price differentials any more than it can be expected to prevent a rise in the general level of prices. If the price is fixed only at a few "key" points, competition will tend to draw supplies away from those points to others where a more advantageous price may be obtained by sellers. Similarly, if prices are fixed for only a few "key" commodities, it will be found that productive resources can more profitably be devoted to the production of uncontrolled commodities. Such partial price control is bound to misdirect production and consumption.

But to control all prices through government edict is a problem so big and difficult that it cannot be handled satisfactorily. Mistakes are bound to be made, and when they are made they are hard to correct.

To paraphrase an old saying, one mistake calls for another.

A mistake of judgment by a price control official is very different in its results from a similar mistake by a man engaged in business. Suppose, for example, a man engaged in the grain business decides that for this year the price of No. 3 yellow corn at Kansas City should average about 4 cents per bushel under Chicago, whereas actual supply and demand conditions warrant a price of 2 cents higher than at Chicago. The chances are that he or his company will lose some money as a result. Such mistakes in judgment are expected of businessmen, and as long as their judgment is right most of the time they will be successful. Furthermore, fellow businessmen will not complain—perhaps they will even be pleased—for another man's mistake may give them the opportunity of making a little more money. But suppose a price official makes the same mistake. The flow of grain is improperly directed. Many grain dealers and farmers complain of bureaucratic bungling. Interested government agencies criticize. At best, there is a serious blot on the official's record and the chances are that his future usefulness is impaired. Perhaps he is even "by passed" or "kicked upstairs" by the agency for which he works.

In order to point up some of the difficulties of the price control

system—or lack of system—under which we have been operating, it is pertinent to consider the controls we have had of corn and hog prices. For some time past, the Department of Agriculture and the Office of Price Administration have between them been holding down corn prices. Hog prices meanwhile were allowedto rise rapidly. Furthermore, the Department of Agriculture announced last December a floor price of $13.25 per hundredweight and this was subsequently raised to $13.75. Although the then current market prices were higher than the support prices, it seems clear that the relationship between corn prices and the support price for hogs was unduly stimulative to hog feeding. The support price for hogs was out of line not only with corn prices but also with the ceiling prices which had been established for various other livestock products.

For one in my position, it is impossible to be certain just why these inconsistent price controls were put into effect. Perhaps it may be attributed to differences in purpose and viewpoint of the two agencies concerned. The Office of Price Administration is charged with the responsibility and imbued with the idea of keeping prices down wherever possible. The Department of Agriculture, on the other hand, seems more concerned with using prices as a means of attaining the maximum possible production. Another possible explanation is that there may have been a mistake in judgment of technical advisors. Thus someone may have thought that the high level of hog prices would not stimulate feeding of corn to hogs as much as it did or may not have realized how rapidly available supplies of feed would be used up. Still again it may be that the price policies were dictated by politics—either the internal politics which affect our various government agencies or the external political pressures which are brought to bear upon them.

In their efforts to check inflation governmental agencies have been greatly hampered by the demands of pressure groups. Demands of farm organization leaders and of labor leaders have apparently been especially troublesome. Leaders of farm organizations and other people who are the political spokesmen for American farmers have demanded that ceiling prices always be placed above "parity." Since parities are, for the most part, based on a set of price relationships which prevailed 30 years ago, it is well recognized by economists that parity is now too high a price for some commodities and too low for others. Under conditions where the

control of tremendous inflationary forces is being attempted by price ceilings, if one commodity has its ceiling set and maintained at too high a level this tends to force an increase in other closely related ceiling prices. As these other prices rise, and with them still others which are "tied" to them by economic pressures, we have a rise in the first parity itself. Consequently, the very system of providing for price ceilings at not less than parity tends to provide a hidden mechanism which assures an upward spiral of prices. Fortunately it is a mechanism which works more slowly than credit inflation when it acts unimpeded.

The disrupting influence of political pressures is something with which we must reckon in attempting to understand what has been done in price control. We must also reckon with political pressures in attempting to appraise what is a feasible or desirable program of price control.

Before going further to discuss the matter I want to remind you that I am neither a political scientist nor a politician. No doubt the soundness of my views as to what is and what is not a politically feasible policy of wartime price control suffer from this fact.

However, I know of no reasonable explanation for the failure of our government to adopt an essentially non-inflationary fiscal policy except the explanation that such a policy was not politically feasible. It is true, of course, that some of the economic advisers of the government were slow to recognize the imminence of the danger of inflation. But there certainly has been no lack of unanimity among economists as to the inflationary effect of financing such large government expenditures through the expansion of bank credit. Consequently, I must assume that in an Administration with so many economists in high positions, the failure to adopt non-inflationary methods of public finance must be laid at the door of political expediency.

Nevertheless, I wish to advance the proposition that it would have been more expedient politically to have adopted a non-inflationary fiscal policy than to attempt to prevent inflation through direct price controls. Certainly the political reaction to the Office of Price Administration has been bad. From the very beginning it has been evident that the Office of Price Administration was bound to make enemies on all sides. How can an Administration responsible for creating the Office of Price Administration expect to avoid sharing in the public reaction against it? There are, of course,

ways of partially shifting the incidence of political disfavor. The "bungling of the professors" can be held up to scorn rather than admitting the basic responsibility of those who failed to give the Office of Price Administration and the War Food Administration the powers necessary to do the task which was expected of them. But would it not have been equally feasible to shift the political disfavor which would have arisen from a more rapid increase in taxation or from more pressure to buy bonds out of current income?

Whatever the answers to these questions of political expediency, I think it is important for economists to recognize the inherent in compatability of a democratic political system which includes pressure groups such as we have, and a general system of *direct* price-control by the government. As long as those who control government policies are subject to popular election the price policies which they direct are bound to be influenced to some degree by political considerations. Since many powerful political groups are vitally interested in certain decisions as to prices and wages, we cannot expect that those who make the decisions will always be free to act upon purely economic and "general welfare" considerations. If, however, prices and wages are for the most part controlled indirectly it is much more likely that political pressures will not interfere with the making of decisions which are economically sound.

DISCUSSION BY A. C. HOFFMAN

Food Distribution Administration

Dr. Working's paper on price control and the wartime pricing of farm products goes straight to the major issues involved in the subject. Whether one agrees with him or not, he is to be commended for his clear perception of these issues and the objective nature of his arguments.

If I summarize his paper correctly, Dr. Working makes two major points: The first, that a comparatively free price mechanism can be relied upon under wartime conditions as under peacetime conditions to regulate consumption, the allocation of resources, and production. It is his contention that "price controls of OPA . . . have often hindered rather than helped to regulate production and consumption properly."

The second point which Dr. Working makes is that fiscal policy rather than direct price-control measures should be mainly relied upon to control price inflation. Economists have rightly placed great emphasis on the limitation of excess purchasing power as an anti-inflation measure. I am inclined to think, however, that this statement represents an over-simplification at least so far as food prices are concerned for reasons which I shall subsequently point out.

As an example of what in his opinion was an improper use of price control, Dr. Working cites OPA's handling of the rubber tire situation. What the OPA did immediately after Pearl Harbor was to freeze the supply of tires and ration them to users for essential purposes at approximately prewar price levels. Dr. Working's contention is that "it would have been well if the price of tires had been raised 4 or 5 times the level prevailing during early December" (1941), "thereby conserving the tire supply by means of a free price mechanism rather than by rationing measures."

Dr. Working could hardly have chosen a more unfortunate example than this to illustrate his point that a free price mechanism works in the public interest under wartime conditions. Regardless of whatever imperfections there may have been in OPA's administration of its tire price and rationing program, it at least served both to conserve our rubber supply and to place it upon the vehicles most essential to the war effort. Had price alone been the "rationer" a considerable part of our rubber stocks would have found its way into the hands of non-essential users whose sole claim to the rubber was that they could afford to buy it.

A free price mechanism is equally incapable under wartime conditions of insuring the proper allocation of productive resources to military purposes. With the amount of consumer purchasing power available at present there is no practical limit to the quantity of automobiles, refrigerators, new housing, etc., which consumers stand ready to buy. This demand is such that the productive resources used for these things would never have been diverted to armament purposes if the Government had not stepped in to limit or prohibit their manufacture. Even now our economy suffers from wage and price inequities which grew into it before the Government moved to stop the competitive bidding for labor and commodities in the first years of the war.

I am wholly in accord with Dr. Working that "where prices, wages, and other rates need to be regulated, they should be *regulated* not *fixed*." In my judgment one of the mistakes made with direct price and wage controls was lack of flexibility. There has been too much tendency to "freeze" prices as of some base period without moving quickly to straighten out the inequities and malrelationships which are bound to exist between different products and different firms under a price regulation of that type. But limited flexibility in this sense is not to be confused with Dr. Working's implied reliance on the comparatively free play of unregulated economic forces to guide the economy under wartime conditions.

Dr. Working rightly emphasizes the important role of fiscal policy for inflation control. But I think he over-emphasizes it, particularly with respect to food prices.

He would place on fiscal policy the main burden for controlling an inflationary rise in price levels and use direct price control measures for the secondary purpose of re-adjusting price relationships within the general level. That is a dictum voiced by many economists, but I doubt its validity so far as food prices are concerned.

The increase in the demand for food on the part of our civilian population does not come primarily from the middle and upper income-groups

but rather from those who formerly didn't have enough income to purchase a varied, or even an adequate, food diet. When a family's income goes from $500 to $600 per year to $1500 or $2000, it can for the first time afford some butter and an occasional steak. That is the source of most of the increased demand for food, and we would not want it otherwise.

Increasing the tax rate on incomes of people receiving $2500 per year and more may be salutary from a fiscal standpoint, but it won't greatly ease the inflationary pressure on food prices. To tax the lower income-groups that are able to eat properly for the first time is hardly a defensible way to control an inflationary rise in food prices. I am not arguing against increased war taxes upon those with ability to pay, but this is quite different from relying on fiscal policy alone to control the level of food prices.

Dr. Working is charitable—perhaps over-charitable—to those who have had to do with the Government's administration of price control. For the mistakes which have been made he would put the major blame on political and pressure groups. I am inclined to think he is over-naive in thinking that Governments can ever operate upon what he calls "purely economic and general welfare considerations" as laid down by economists. Until economists themselves can agree on what "general welfare" is and how best to promote it, who can say what kind of world even they would give us?

WARTIME DEVELOPMENTS IN FARM CREDIT AND THEIR POSTWAR IMPLICATIONS*

A. G. Black
Governor, Farm Credit Administration

TWO well defined developments are taking place in the farm credit field. While both are taking place during the war, it is only partially correct to term them "wartime" developments in the sense that they are a consequence of the war itself. Either or both might have taken place had the war not occurred.

The first is that which is altering the debtor-creditor relationship. This changing relationship is a direct consequence of war activity as it affects agriculture, and although somewhat the same result might have followed any period of extraordinary prosperity in agriculture it is improbable that any such prosperity as we are now experiencing would have occurred in the normal course of events. It is reasonable, therefore, to consider the present changing debtor-creditor relationship as a wartime development.

The situation with respect to farm debts may be characterized by the simple statement that "farmers are getting out of debt." When we consider the course of agricultural indebtedness over a period of a generation or so before 1929 this is an amazing statement to be able to make. An interesting aspect of the situation is that the debts are being repaid from income. Although it is true that farm debts were reduced during the 1930's and some of such reduction doubtless was derived from income, a dismaying proportion of the reduction was the result of foreclosures and bankruptcies and was hardly the kind of debt reduction that could be looked upon with any feeling of satisfaction. It certainly was in no sense an index of well-being in agriculture but rather the reverse.

The farm debt situation during the war period, up to this time, is in sharp contrast to the debt situation as it developed during World War I. In that period the mortgage debt of farmers increased year by year and in addition a very large amount of short-term indebtedness was accumulated by farmers. Following the war much of the short-term indebtedness was refunded into mortgage indebtedness and accounted in no small degree for the continued growth of the total farm mortgage debt well into the 1920's. The

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

farm mortgage debt is now being rapidly retired. The short-term indebtedness, too, is not growing rapidly and from all indications seems to be in manageable condition. Although some individuals may be borrowing a larger dollar volume each year, they seem to be borrowing these amounts for a shorter period of time and are generally paying off the debt entirely at the close of the season or reducing their short-term carry-over more than is usual.

With respect to the farm mortgage indebtedness, it is significant that $712,701,858 have been paid on principal since 1940 so far as the experience of the Federal land banks and the Federal Farm Mortgage Corporation is concerned, and the rate of repayment is accelerating. New loans are being made, of course, but they are being made at a reduced rate and in an amount only about one-fourth or one-third of the amount of repayments on the principal. The experience of other lenders, such as the life insurance companies, for example, parallels the experience of the Federal institutions. The estimates of total farm mortgage indebtedness made by the Bureau of Agricultural Economics show that the total debt has been reduced from $6,909,794,000 in 1940 to $6,350,263,000 in 1943. This is in contrast to a growth in farm mortgage indebtedness from $4,707,358,000 in 1914 to $6,536,860,000 in 1918, during the First World War period.

The short-term indebtedness, held by commercial banks and agencies supervised by the Farm Credit Administration, in 1940 was $1,458,577,000. It is now $2,026,162,000. This change indicates that a smaller increase had occurred than during the First World War when the short-term indebtedness held by commercial banks (the only available estimate) arose from $1,607,970,000 in 1914 to $2,506,814,000 in 1918.

Although the total farm mortgage indebtedness is decreasing, it is doubtless true that some individuals are increasing their debts through mortgage or short-term borrowing or both. Insofar as such men are extending their credit to a point where they can hardly pay out unless the present income situation continues, they are, of course, getting into a dangerous situation. Happily such individuals are few in number. Most farmers seem to want to get out of debt or at least to get their indebtedness into unquestionably manageable condition. Farmers apparently were not so much concerned about the debt situation during the First World War.

It appears, too, that creditors are thinking somewhat more about

the welfare of their borrowers (and themselves) now than they did 25 years ago. Although loanable funds are plentiful in both the long-term and short-term field, I have heard of no instances where lenders have been urging borrowers to get into debt. This was certainly not the case 25 years ago when it was altogether too common for bankers or other lenders to urge farmers to contract indebtedness for the purchase of land or for expansion generally. In contrast creditors, especially those holding the mortgage indebtedness, have urged farmers to pay their indebtedness out of income and frequently have made arrangements contrary to their own short-term income advantage, to make it possible for farmers to pay debts before they were matured.

One of the characteristics of the present situation, which was not present during World War I, is the relative absence of a land boom. Although land prices are increasing about as rapidly as they did during World War I and although in many localities they are undoubtedly reaching a boom situation, nevertheless the land price situation thus far has not shown up in an expansion of credit to finance land purchases. Purchases made thus far have been made with what would normally be considered ample cash payments and in many cases full cash payment. It is possible that if the land price situation does get out of hand and a speculative boom develops we may see the present trend in the farm mortgage picture reversed. But should this not occur and should farmers continue to apply large proportions of their increased income to the payment of debts, farmers will emerge from the war in perhaps the best financial condition that they ever as a group experienced. Should this be the future development the postwar implications will necessarily be far-reaching.

There will undoubtedly be disturbances affecting agricultural income following the cessation of hostilities, whether immediately or at a somewhat later date no one can be quite sure. It is generally hoped, of course, that the extreme fluctuations in income comparable to those experienced during the 15 years after World War I may be avoided. But whether they will or not, if farmers of the country emerge from the war substantially debt-free they will be in an immeasurably better condition to withstand whatever economic disturbances may occur than they would be had indebtedness increased materially. A farmer who is out of debt can carry on, if need be, for a considerable period of time without endanger-

ing himself. If he has large fixed obligations to meet as a result of heavy indebtedness, the same period of low incomes may well be disastrous. We may find, therefore, that agriculture will be in such sound condition following this war that there may be relatively little need for some of the emergency credit measures that were adopted immediately following World War I or during the early 'thirties.

A second development now taking form relates to the institutional organization in the farm credit field. It is hardly an outgrowth of the wartime situation although some aspects of the development might be an outgrowth of the attitudes induced by the stresses and strains of wartime activity. For several years there have been growing indications of concern on the part of members of Congress and the public generally with the multiplication of federal agencies, and particularly with the activities of some of them. This feeling was developing before the war and has strengthened greatly during the war period. The necessity for large war expenditures has focused attention upon the expenditures of government for non-war purposes. The latter expenditures have been under increasingly closer scrutiny, and demands for the utmost economy from the Executive branch, from Congress and from the general public, have made necessary critical examination of many governmental activities. Operations of agencies have also been under pressure because of the shortage of manpower and of equipment and supplies necessary to carry on their several functions. There are in existence at the present time within and without the Farm Credit Administration several almost separate and distinct systems of agricultural credit with separate organizations running to the individual farmer. Although there may be considerable coordination between these various activities, nevertheless the institutional set-up is such that individual farmers may have occasion to have credit relationships with one or more of five or six different credit agencies or programs, each with its separate local field office and with its separate overhead administrative lines. The individual farmer seeking credit is ordinarily not greatly concerned as to the source of such credit. He is, of course, concerned with the terms and conditions of his loan, but is not very much interested in the details of the administrative organization which supplies funds to him, and is more likely than not to be confused and angry over a situation which may require him to make possibly a half dozen contacts with

as many local representatives in possibly as many different towns before finally determining whether he may or may not be eligible for credit from one or another of the federally sponsored credit programs.

The fact of the multiplicity of credit agencies at the local level without doubt has contributed to the interest now being displayed by Congress in the farm credit field. To illustrate what the individual farmer may be faced with in his county, he may find any or all of the following agencies offering credit services:

1. The national farm loan associations will be offering first mortgage loans and on behalf of the Land Bank Commissioner, second mortgage loans;
2. The production credit associations will be extending credit to farmers of acceptable credit standing for production purposes;
3. The Farm Security supervisor may be offering rehabilitation loans to certain men who cannot qualify for credit from other sources or, under certain conditions, mortgage loans or loans from Bankhead-Jones Tenant Purchase funds;
4. The Regional Agricultural Credit Corporation loan representative operating in conjunction with the County USDA War Board may be offering loans to bring about the increased production of certain war crops;
5. The Emergency Crop and Feed Loan representative may be taking applications for loans from applicants eligible under its program;
6. The farmer may be a member of a local cooperative that is borrowing from a district bank for cooperatives or, under certain circumstances, the Central Bank for Cooperatives; and
7. He may, in certain areas, be securing production funds from a financing corporation owned by a cooperative which in all probability is securing a part of its funds from the bank for cooperatives.

It seems to be a popular conception that situations of this sort are brought into being by the initiative of the bureaucrats. The facts of the matter are that each and every one of these programs is specifically authorized by law and is required by law to operate in very much the pattern that we now see. Despite the apparent multiplicity of credit agencies there is in practice amazingly little duplication of effort in the sense of two or more agencies attempting to perform precisely the same job. Each of these activities came into existence as the result of demonstration or conviction of a need to be met. It is equally true that many were established without much concern for other agencies operating in the field, or concerned as to whether or not some existing agency might not equally well carry on the proposed activity by a minor broadening of authority

without the necessity of setting up additional administrative machinery.

The farm credit system in the United States has developed without much guidance in much the same manner that some of our old country houses have been built—one room at a time as need arose, without very much concern about the general appearance of the structure and without much regard to the efficiency of the final floor plan. There is now in existence a credit system that in one way or another does serve practically all groups of farmers even though such service is performed under a very large number of separate and distinct laws and under radically different forms of administrative organization. Whatever Congress may do with respect to bringing order out of what has become a rather chaotic agricultural credit institutional organization, the end product, service to operating farmers, must not suffer.

The difficult administrative situation growing out of the complex institutional picture has been called to the attention of Congress both formally and informally on numerous occasions but only recently, under the spur of the general demand for improved governmental efficiency, reduction of multiplicity of governmental activities and of expenses, has there been active interest shown. Possibly some of the increased interest may have been brought about by demands on the part of private lenders that all governmental activities in this field be abandoned except in that segment of the field in which the private lenders did not wish to engage.

At any rate, in recent months one Congressional committee after another has expressed concern about the agricultural credit set-up and there is insistence and apparently a determination on the part of Congress that action be taken. An illustration of this sentiment may be found in the Report to the Senate on the Agricultural Appropriation Bill for 1944. This comment, incidentally, is a most unusual, if not a unique, statement to be made by an Appropriation Committee, and is as follows:

"(The committee is strongly of the opinion that legislation should be considered by the Congress at an early date looking to the consolidation and coordination of the various loan activities of the Department of Agriculture. This is a matter which should be decided by legislation which is considered by the proper legislative committees. The committee does not believe that the Committee on Appropriations has jurisdiction of this question and does not wish to usurp any of the powers or functions of the

legislative committees. For this reason in the consideration of the items affecting the Farm Security Administration and the restrictions placed upon other lending agencies duly authorized by law, the committee felt constrained to adhere to the existing order, leaving the entire question of the reorganization of the credit agencies and activities of the Department of Agriculture to the legislative committees having jurisdiction thereof and who are now conducting investigations into various phases of the problem.)"

A committee, known as the Cooley Committee, established from the membership of the House Agricultural Committee, has been conducting an investigation of the Farm Security Administration and has announced informally its intention to consider the entire farm credit field.

Individual members of Congress have from time to time asked for suggestions or for comments upon their suggestions for simplification of the farm credit structure.

Many of the Farm Credit district boards have expressed concern and in some cases, under the spur of decreasing income resulting from declining loan volume, have urged drastic reorganization of their existing institutional set-up so as to permit installation of economies now made difficult or perhaps impossible because of existing legislative requirements. From many directions therefore—from the farmers themselves, confused by the multiplicity of local credit outlets, from within the several credit agencies, from Congress, and from private lenders who would solve the problem by eliminating all federally sponsored credit agencies—come demands for significant institutional modification. What the results of such demands may be no one can predict with certainty but it is apparent that it is probable that there will be at least some response to the demands coming from so many different directions to correct a situation that doubtless requires attention.

The institutional set-up of governmental activity in the farm credit field is being challenged from a different source and upon grounds far more fundamental than those motivating examinations of the type just discussed.

As we are all well aware a great debate is taking place concerning the theory of government itself, particularly with reference to the proper sphere of government and its relationship to the people in general and to private business activity in particular. The question of governmental activities in the farm credit field is merely one detail in the larger picture. Private lenders in rural areas are chal-

lenging the activities of government in the farm credit field. Their solution of the problem, or perhaps more accurately the solution of those who represent the most conservative attitude with respect to governmental activities in what they consider to be purely a field for private enterprise, is represented by Section 8 of the Department of Agriculture Appropriation Bill as it was reported to the House of Representatives by the Appropriations Committee. This section reads as follows:

"None of the funds herein appropriated or authorized hereby to be expended shall be used to pay the compensation or expenses of any officer or employee of the Department of Agriculture, or of any bureau, office, agency, or service of the Department or any corporation, institution or association supervised thereby, who engages in, or directs or authorizes any other officer or employee of the Department or of any such bureau, office, agency, service, corporation, institution or association to engage in the negotiation, solicitation or execution of any loan which has not first been offered to and refused by the private lending agencies customarily engaged in making loans of similar character and at comparable rates in the region where such loan is proposed to be made."

It is abundantly clear from speeches, letters, resolutions, and statements that this section represents the ideal toward which a considerable segment of private lenders are striving. It is certainly too strong to say that this is the objective of the more thoughtful of the group or even of a majority of the group. It should be noted in passing that had this section become law its provisions would have affected in minor degree or not at all the operations of the direct governmental lending agencies, such as the Farm Security Administration, the Regional Agricultural Credit Corporation or the Emergency Crop and Feed Loan Division, as these agencies under present laws and regulations are now substantially following the requirements of this section. The provision would, however, have required that no loan could be made by the Federal land banks or the Land Bank Commissioner, or the national farm loan associations, or the production credit associations, or banks for cooperatives without having first secured the refusal of such loan by private lending agencies. It is with respect to the latter group of lending agencies that the challenge is especially directed.

The reception of this proposed section is of interest as an indication of the lines that are likely to be drawn and the pressures that may develop when the issues involved are as sharply focused as they were in this instance. As soon as the provisions of the bill as

reported became known, and even before the bill came up for formal consideration section by section in the House, such a storm of protest was raised by borrowers from the Federal land banks and the production credit associations, and by farm cooperatives and general farm organizations, that the committee reporting the bill withdrew the provision. The responsibility for the inclusion of the section has never been established and it would be idle to speculate as to its source. It would, perhaps, not be an overstatement to say that it did not originate in agricultural circles.

It may be helpful to outline the basic facts of the agricultural credit situation and to suggest the possible alternative lines of action that may be taken as a result of the present challenge. There are in existence today actively or potentially two systems of agricultural credit in which government is directly or indirectly concerned. There is, first, a system of direct federal lending by agencies manned by federal employees. These include the Farm Security Administration, the Regional Agricultural Credit Corporation, and the Emergency Crop and Feed Loan Division. The sum total of their loans is not large in comparison with the total credit requirements in agriculture. In general, they loan to individuals who are unable to secure credit from other sources. Logically, the Federal Farm Mortgage Corporation should be included in this group but because of its unusual relationships with the Federal land banks it is not so included. Were it included, however, the combined authorities included in the various laws governing the several strictly federal agencies are sufficiently broad as to permit the development of direct federal lending to all classes of farmers irrespective of their financial standing and, with the exception of loans to agricultural cooperative organizations, all credit needs in agriculture could be made by one or another of these governmental agencies.

Paralleling the federal establishments is a system of wholly or partially cooperative institutions that are authorized and sponsored by government and, in varying degrees, recipients of direct or indirect governmental financial support. Those institutions in which the cooperative principle is clearly recognized are the Federal land banks, the production credit associations, and the banks for cooperatives. Each of these institutions is owned in part or entirely, either directly or indirectly, by farmer-borrowers or by cooperative borrowers. Each of the systems has a large investment

of capital funds by the Federal Government. However, the participation of Federal Government in the ownership of the various individual corporations varies widely. The monetary participation in the Federal land banks is of two forms, that of stock ownership and that of contributions to surplus. In two of the Federal land banks the Federal Government has no investment either of capital stock or of surplus; in four it has no investment in capital stock but has made subscriptions of varying amounts to surplus; and in six it has investments in both capital stock and surplus. Because of the joint liability of the several banks with respect to bonded indebtedness, the variation in government funds from bank to bank is perhaps not significant from the standpoint of the question involved in this discussion.

With respect to the production credit associations, the Government has a stock interest in all associations, ranging from a minimum of $5,000 in a few to a maximum of $200,000 or $300,000 in others.

The investment of government funds in the various banks for cooperatives varies somewhat from district to district but, for the system as a whole, constitutes not far from 90 percent of the total capital invested in these institutions.

Associated with these cooperative enterprises are two sets of corporations that, while under the direction of their district board of directors, are fully capitalized by the Federal Government. These institutions are the Federal intermediate credit banks and the production credit corporations. Although they are fully owned by the Federal Government they should be included as part of the cooperative system of agricultural credit. They perform services primarily for one or another of the cooperative institutions and, in the case of the Federal intermediate credit banks, to a lesser extent for private loan companies or banks.

The examination that the farm credit system is now receiving should serve to sharpen the issues involved and to define more clearly the underlying philosophies that will determine the direction that farm credit institutions will take during the years to come and perhaps even the form of such institutions. The extreme developments have already been suggested. It would require only slight legislative adjustments to make possible a completely federalized system of agricultural credit. The terms and conditions of loans could easily be such that it would be impossible for either private

lenders or cooperative institutions to engage in this field in competition with the federal establishments. I suppose there may be some few who would welcome a development of this kind, but I know of no one who boasts of any real familiarity with agriculture or is in any way conscious of the attitudes of farm people or of the public generally, who believes that this is the direction that the agricultural credit system should take.

The other extreme development would likewise require very simple legislative action to bring about the funneling of all sound lending through the several private lending agencies. The field remaining for public or cooperative handling would be loans to individuals unable to secure credit from private sources or emergency lending that might be necessary during periods when private lenders were unwilling or unable to engage in lending activities. Although in theory some form of cooperative lending institution might engage in the emergency type of operation, actually this function would be assumed by the Federal Government as no cooperative organization could exist and operate only during emergency periods. Under this system we would have the agricultural lending field consisting of both individual loans and loans to cooperative organizations served by private lenders. The Federal Government would take care of demands from the so-called subnormal risks and of credit emergencies during times when private lenders might withdraw from the field.

There have also been suggestions that a system of guaranteed loans to war veterans be established. This would follow in some respects the pattern of the Federal Housing Administration loan. Some private lenders have also advocated the extension of this concept into the farm mortgage field and even into the short-term field.

If neither of these extreme approaches is acceptable, a third alternative involves the future development of the cooperative system. A brief look at the public attitude toward cooperatives is relevant to an understanding of the possible developments in this field. For many years the cooperative movement in agriculture has been fostered by Congress (and by the public). On numerous occasions Congress has declared it to be a matter of public policy to promote and to encourage the development of agricultural cooperatives. Hardly a session of Congress has been held for over thirty years in which some action has not been taken or some indication

given of the intent of Congress to promote the agricultural cooperative movement.

The pattern established for the Federal land bank system in 1916 was consistent with the policy of Congress with respect to agricultural cooperation. Action taken later with respect to the production credit system and the banks for cooperatives was likewise indicative of Congressional support of agricultural cooperation. The question that will be presently raised is whether or not Congress is prepared to alter its policy with respect to agricultural cooperatives and whether, in the credit field at least, it will withdraw or modify active support given by the Government to the cooperative credit institutions which has undoubtedly enabled them to become important factors in the farm credit field and which has furthermore resulted in marked cheapening in credit costs and improvement of credit services to individual farmers.

Some of the more moderate critics of the Federal credit institutions, among the private lenders, declare that they are not opposed to the cooperative credit institutions but insist upon the withdrawal of any direct or indirect governmental assistance to such institutions, especially of a financial nature, and thus put the cooperative agencies on an equal competitive level. If this is done it will be indicative of a changed policy of Congress with respect to the entire field of agricultural cooperation of which cooperative credit agencies constitute one segment. It would represent a retreat from the generation-old policy of giving cooperatives a more favorable competitive status than is accorded similar private business and presumably would be followed presently by action removing special consideration granted the cooperative form of enterprise under antitrust legislation and tax legislation, together with withdrawing various legal directives for special consideration to be given agricultural cooperatives included in numerous pieces of agricultural legislation.

It is true that the agricultural credit field is the only one in which the Federal Government has made direct and substantial subsidies. These subsidies, usually in the form of cost-free use of capital funds, were made to insure the financial integrity of the institutions and to enable them to make available to farmer-borrowers credit upon favorable terms and conditions. It was provided in the original legislation and was surely the hope and intent of Congress that eventually the cooperative credit institutions could and would be

completely owned by their member-borrowers. It was thought that the stock purchase requirements plus profits from operation might eventually result in the accumulation of sufficient capital funds to accomplish this purpose. Given a reasonably long period of favorable agricultural conditions, the objective can probably be achieved for the Federal land banks. Experience indicates, however, that during periods of distressed conditions in agriculture there is probable need for capital funds to maintain the integrity of the system over and above the amount of funds that there is much probability of being contributed by member-borrowers or accumulated from earnings. Over a 25-year period the average required capitalization for the Federal land bank system necessary to meet all demands, including requirements for maintenance of collateral behind farm loan bonds, has been 15 percent of the outstanding loans. With respect to certain individual banks the capital requirements have run as high as 30 to 40 percent. Experience suggests, therefore, that while the present method of capitalization may permit a return of all federal capital for considerable periods of time there is doubtless need for additional sources of capitalization during emergency periods.

With respect to the production credit associations, their earning record over a 10-year period, which must be conceded to be an unusually favorable period for operations of this kind, suggests that a large number of associations will eventually accumulate sufficient capital to enable them to operate successfully without the use of federal funds. Some associations, however, operating in areas where there are large numbers of very small loans, may find it difficult ever to operate without capital funds from outside sources.

It is not clear that the banks for cooperatives, operating as a separate system, will within any reasonable length of time accumulate capital funds from stock subscription or from profits which will enable them to make loans to cooperative associations in the present volume unless their capital funds are supplemented from other sources, presumably governmental. Possibly the requirements for capitalization of the banks for cooperatives could be reduced somewhat if the legal requirements for discounting by the Federal intermediate credit banks were modified so as to permit a larger proportion of cooperative bank loans to be discounted and loanable funds derived from that source. Should this be done, then, of course, the capital requirements of the banks for cooperatives

would be materially reduced and the objective of having all such capital supplied by the borrowers or from accumulated profits would become more definitely within the realm of attainment.

No specific suggestions for making the Federal intermediate credit banks or the production credit corporations fully cooperative have come to my attention. While either or both doubtless could be made cooperative by appropriate legislative action, the difficulties of so doing are increased because of the indirect relationship of these institutions to the individual borrower who is served by them.

It is generally agreed that the continued development of an improvement of the cooperative credit system should be pressed. It surely offers great advantages so far as the individual borrower is concerned, to either a completely federalized system or a completely private system. It is my own thought that, once the issues are clearly defined, Congress is unlikely to depart from its traditional policy of encouragement to the cooperative approach wherever it may be used in the improvement of agricultural conditions. If this judgment is correct then the area for debate is greatly limited and will take the form of a discussion of whether the cooperative system will be subsidized at all and, if so, to what extent. Historically, Congress has on many occasions indicated that it would come to the financial assistance of the Federal land banks (the question has never arisen with respect to any of the other agencies) should there be danger of a default upon the bonds in the hands of the investing public. There has been no legal obligation for the Government to render this assistance but there has been a tacit understanding supported by numerous statements within Congress that the assistance would be forthcoming if necessary, and actually financial assistance in large amounts has been rendered.

It is not clear that the system could stand completely on its own feet with all connections with the Federal Government severed. It might eventually do so but there would undoubtedly be a considerable period during which bonds and debentures offered to the public would not have their present reception, which to no small extent is due to the conviction that the Government has a moral obligation with respect to their integrity if not a strictly legal one. It is doubtful, too, if the member-borrowers themselves or the cooperative associations dealing with the credit institutions would

want to sever all relationships with the Federal Government. Perhaps if that particular matter should come to an issue there would be hesitation on the part of agricultural interests to divorcing themselves from support that might be given to the credit institutions during periods of emergency.

Developments in the credit field, therefore, should be closely followed as they will carry implications that may be significant in other phases of agricultural cooperation.

It has been established that the contributions of cooperatives to public welfare have often resulted as much from their mere presence in the field as from the direct savings accruing to their patrons. By setting the pace and establishing reasonable competitive standards they were of benefit generally to both members and non-members. Experience has demonstrated that it is unnecessary, indeed probably undesirable, that cooperatives achieve a dominant monopoly position in order to bring about maximum benefits. A healthy competition is just as beneficial to the welfare of cooperatives as it is to other forms of business enterprise. It seems to be sufficient that the cooperative have adequate volume of business to maintain itself as a going concern and to make itself a well recognized factor in the field. To that end we must be mindful that cooperatives, including those in the credit field, be not placed at a competitive disadvantage under the guise of "equalization of competitive opportunity."

DISCUSSION BY O. R. JOHNSON

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What financing aid is our postwar agriculture likely to need, and how urgent is the need likely to be? The magnitude of the need will of course be dependent on how long the war lasts and how much postwar aid American agriculture will be asked to extend to the rest of the world. Also, just how much aid does the public regard agriculture entitled to in the readjustment period to follow. It is assumed that the public is liable for those readjustments made necessary by disruption of the normal farming pattern in response to our government's special wartime needs for greater emphasis on emergency production, and not already compensated for in prices allowed or incentive payments made. And where remuneration has already been provided, there is still the responsibility to see that restoration facilities are available, including credit.

What are those restorations which have been made necessary because of the war program and which are likely to involve a need for credit?

First perhaps is a very considerable disturbance of the cropping pattern,

which has done serious though not irreparable violence to the soil conservation program on a great many farms. Public agencies have consciously urged a moderate ignoring of fertility maintenance in the emergency. They have been careful that such a policy stop short of unrecoverable depletion.

Second, for the same reason that soil maintenance has been ignored, so have many producers destroyed the normal balance between crops and livestock. The re-balancing of livestock against feed supplies, while a real readjustment problem, should not require added credit facilities. Indeed, it might reduce credit needs.

Third, farm improvements have suffered more than normally under the urge to concentrate on critical war materials. Credit will certainly be required for repairs and replacements, and many still serviceable improvements will need replacing because of the factor of obsolescence and changing labor supply. With labor rates at least double the prewar level, and with little technological improvement in use of labor on livestock, changes in improvements which result in saving of labor become of special significance. Also in many rural areas farm homes are so nearly past the repair stage that modernizing the old building would be a very questionable procedure. Removal of the old and replacement with new modern designs with lower upkeep cost and greater economy of labor in operation will be highly desirable. This will clearly require credit facilities.

Fourth, is the matter of restoring and modernizing the equipment of the farm. Here again replacements and repairs have been difficult to provide. We entered the war period with about 12 years of agricultural depression and failure to provide normal replacements. Then with the manufacture of new machines and repair parts greatly curtailed, it means the item of repairs and replacements will be abnormally large. Here again the labor situation will greatly affect the rate of replacement. More mechanical devices for saving of scarce and expensive labor will be required than ever before. Credit agencies will have great opportunity to be of service in this connection, and particularly in helping make possible joint ownership by several farmers of certain labor saving tools which are highly important but too expensive for individual ownership on medium sized farms.

Fifth, the change from a controlled production program emphasizing scarcity and supported by payment from the federal treasury, to a program of abundant production and supported prices, will probably have an effect of increasing the need for production credit.

Costs have definitely increased, calling for a more liberal expense account. Prices are much higher for the time being but they are much less likely to remain high than are costs. This will increase the need for operating capital or credit.

Farmers have been reducing real estate debts as has been indicated in the Governor's report. Whether this will continue until the postwar readjustment is completed is a question. Their capital and credit resources in the past have tended to be used for increased debt in the later phases of a farm product price boom. They have also been creating reserves through the purchase of war bonds. These are being urged, and justly so, as appropriate postwar capital reserves.

Thus there are aspects to the problem of need for postwar credit which tend to counteract one another. Just what will be the net magnitude of postwar credit needs cannot therefore be definitely determined at the present time. And so far as known there is no dependable measure. Also, the amount of credit needed and the amount actually used will not likely equate. The cost and adaptability of the credit supply will continue to affect the amount used.

An accurate forecast of the postwar agricultural situation would of course permit a more dependable determination of what the credit need will be, and something about the ability of farmers to command credit. As such an accurate knowledge is obviously unavailable, the only procedure left open is to start with the known and recognized needs or requirements and work from there into the realm of conjecture or forecast just so far as we are willing or think it worth while to go.

Some of the more obvious requirements have already been listed. Those which are mostly the result of considering the problems of dislocation and disturbance of the individual farm business setup in attempting to maximize its contribution to the war effort would include

1. Restoration of farm improvements.
2. Restoration of farm equipment.
3. Soil replenishment.
4. Readjustments in livestock to restore balance.

It is of great importance that in facing the question of restoration, careful consideration be given to the possibilities of redirecting the farm's activities in conformance with the prospective situation rather than merely restoring to meet former conditions which no longer obtain. It is entirely possible that mere restoration would be preserving an obsolete or near obsolete situation. As nearly as we can see into the future, this must be avoided. Obsolescence is going to be a more generally regarded cost in agriculture from now on. When considerable repairs or replacements are necessary, that is obviously a good time to consider remodeling or modernizing.

What are the factors which have appeared in the scene which are forerunners of change? Certainly the availability and cost of labor is one. Another would be technological developments, physical and biological. Still another field is that of governmental policy, both political and economic. Necessity has caused the supposedly temporary wartime adoption of many methods and practices which may be retained as peacetime fixtures. Acquainting the far corners of the earth with many of our farm or factory products which they have never used before may result in demand creation, and the need for maintaining strong trade ties with these areas, for political reasons, may perpetuate supposedly temporary new practices or permanently eliminate others. Abrupt return to prewar status will not likely be permitted.

Will government continue to expand its social security program, with a relatively high level of well being for dependent children, the unemployed, the sick and infirm? Will we see ever increasing requirements as to wages, housing, working conditions, privileges, etc., for wage earners?

The foregoing are merely samples of developments outside the farm which are quite likely to influence practices and procedures on the farm and thereby insert themselves in the list of considerations weighed when deciding on how far one can afford to go in restoration or when redirection becomes desirable. This will be directly related to the amount and type of credit needed to best meet requirements.

While both time and prophetic limitations preclude the presentation of an exhaustive list of developments which will affect the adequacy of the modernizing program for the farm, some of the more obvious are briefly mentioned.

Adequacy of the farm unit to utilize economies available or being developed and thereby provide sufficiently attractive home and outlook features to satisfy both the farm family and publicly imposed standards will be a more critical determinant of eligibility of the farm operator for credit extension.

Farm improvements must cost less, be more adequate from the standpoint of sanitation, light, heat, labor convenience, cost of upkeep and multi-use possibilities. Farms under or over improved will therefore be greater credit risks in an economy where costs are more formidable, maintenance requirements more rigid, and margins likely to be narrower.

To what extent is part-time farming to be expanded? Wherever this occurs it calls for high quality improvements on semi-farms. Will these rural families be grouped in the same credit category with full-time farm families? Will their contribution to production affect the earning and hence the capital value of farms operated on a full-time basis? In determining local tax rates and standards for public improvements and facilities, are such likely to be more optimistic than full-time farm operators? If their judgment and reactions differ materially from that of those families wholly dependent on the farm, such difference as it affects costs will bear on the credit problem.

Then there is the transient farm family, the backwash of the postwar readjustment period. We are told that a strenuous effort is being organized to keep this wave of back-to-the-landers from appearing on the agricultural landscape, and thus save agriculture from the shock-absorbing burden, as well as saving the families from the misfortunes of dislocation. Farm credit might be used as an important means of saving these people from grievous error should they appear, or if they must be cared for, the providers of credit might see that their chances of survival are maximized.

There will undoubtedly arise a great need for credit aid in providing adequate housing for the farm laborer on many of our farms. Whenever a labor crisis arises, we usually find ourselves short on housing for the type of worker which might still be available. Doubtless there will be, within the wave of greater social control, definite efforts to provide rural workers (wage earners) with more adequate housing. Providing healthful, and attractive quarters for married hired workers is certainly a feasible and highly advantageous way in which farm employers can more nearly compete with industry for competent workers. On some farms such improvement will take the form of suitable housing for numbers of unmarried

workers, male or female. Where seasonal crew needs exist, it may be feasible to develop multiple use facilities, with lower costs allotable to the various uses, thereby contributing to a reduction in the housing charge against the hired laborer.

In connection with this whole question of financing the care and housing of farm labor, there will arise the necessity of considering whether or to what extent it will be more desirable to provide for them on farms, or if it would at times be socially or economically more desirable and practicable to make provisions for them in urban communities and transport them to and from work. Industry may already have developed a part of the answer. Certainly credit agencies should be concerned about the adequacy with which this question is studied by the planners for postwar America. Credit, asked for by misguided farmer borrowers on the basis of inadequate information, if granted, will need to carry an aspirin rider, for headaches will surely follow.

In another direction the suppliers of farm credit should be deeply concerned, namely, to what extent are we likely to shift from conservation through choice to mandatory conservation of the productivity of our farm lands? In the past, credit extensions have had to be made on the assumption that so far as productivity of the land goes the first years of life of a loan are the safest and the years of greatest repayment ability. How would the cost of credit be affected if the creditor knew that in the last years of a 20-year loan the land security will be as great as at the beginning of the period? Have credit agencies any power to aid the move toward a universal policy of productivity conservation?

Mention was made earlier of the appropriateness of joint ownership by farmers of some of the more costly pieces of labor saving machinery. Do credit agencies have available simple means whereby such arrangements can be financed without too formidable security requirements on all parties concerned?

How can credit be utilized to encourage farmers to gradually increase their reserves of feeds? The ever normal granary idea would seem to have applicability to individual farm situations. It is well known that the typical farm operator seldom has adequate feed reserves. Would it not be much wiser to have stored on the farm adequate reserves to allow for variation in seasonal production, and save back hauls, handling and storage charges elsewhere? The urge to sell surplus feeds, because of need for the income involved, would vanish if the contrast between cost of that amount of credit as compared with the differential between price received in surplus years and price paid for feed to make up the lack in deficit years were made sufficiently clear. To what extent are we, by making credit abundantly available, encouraging producers to avoid developing an adequate reserve policy for effective farm operation? Maybe we need savings deposits possibilities in the production credit field as these have been provided in the Farm Real Estate loan field.

We might in conclusion reasonably ask whether agricultural credit extension agencies might not properly use the great powers of this service to influence farmers to shape or develop more adequate business policies which would increase the effectiveness of their operations and reduce costs,

rather than look upon the function of furnishing credit purely as a matter of making loans wherever the security seems adequate, collecting these loans again and keeping the losses to a minimum. Whether or not it would be feasible or desirable that loan policies be utilized as a directive influence in the field of agriculture seems to be a question which could stand further study. It is recognized that one agency alone, such as the Farm Credit Administration, must take cognizance of their competitive position in the field.

If the questions raised in the foregoing seem distinctly unsophisticated, it can be attributed to the failure of the commentator to keep abreast of recent developments in the Farm Credit field, and to his inability to procure a copy of the paper on that subject, until a few hours ago.

WARTIME DEVELOPMENTS IN FOOD PROCESSING AND PRESERVING*

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THIS article is intended to invite suggestions for action and to start and promote research rather than to chronicle advances in the arts or to report the results of professional study. In this field, all action programs and all study problems are caught up in the meshes of two interrelated time sequences. Action programs that disregard these sequences come unbuttoned; research that disregards them remains sterile erudition.

One of these sequences is that of the stages whereby last year's primary crops become next year's plate food. Within this, a double system of fans occurs: any extractive stage food material has an innumerable and complex system of later uses; and there is a backward spreading fan that permits any category of plate foods to be drawn from innumerable and unidentifiable sources. No one knows where an ear of corn will return to dust: no one knows from what dust a sizzling steak sprang.

The second sequence is that of the rate of diffusion of a new invention in the arts. It is seldom possible to reap the benefits of an invention in a short time. A new process milk powder, whatever its merit, cannot make its weight felt until plants are built and manned and until cook books are revised, cooks are trained and tastes are cultivated. No one problem is completed until the operations of farmers and the operations of manufacturers, dealers and cooks are adjusted to one another.

Within these systems of time sequences, I shall make some arbitrary groupings of illustrative examples that differ from one another in the character of action and study that now seems most urgent. About these examples, I shall make statements that are positive in verbal form but I shall not say they are trustworthy either as research results or as reports of adopted action policy. I shall put them forward only as theses worth considering. In a word, this article results from intermittent reflection upon an assorted procession of incidents that have come under my notice in the last two years without becoming part of my regular or formal work. In

* Adapted from a speech made at a meeting of the American Farm Economic Association at St. Louis, Missouri, September 16, 1943. Neither the speech nor the article is intended to reflect the views of anyone except the author.

putting them together here I have done little beyond some preliminary sorting and beyond attempting to be precise in the choice of words.

"Food" is a dreadfully overworked word. So also is "wartime development." Even those of us who know better lazily speak of "food" to mean a next year's wheat acreage goal, a field of growing wheat or wheat in elevators or flour at a mill or a bakery, or bread on a grocer's shelf or bread pudding disguised as victory pudding. So also we speak of wartime developments without noticing whether it is part of the warfare or merely something that happens while we are at war. So too we mix indifferently a "development" that is only an idea or a result of a laboratory test or a patent application or a pilot plant operation or a factory under construction or a completed developmental operation wherefrom great quantities of product have become accepted as civilian "grub" or soldier "chow."

Those of us who indulge in slogans about how "food will win the war and write the peace" need to be careful both in research and action. For no "food" can do any war winning and peace writing until it is eaten and has generated human work or activated a fighting soldier. It is the generated work and fighting that win battles and nail down victories. Hence, mere partial developments that occur in wartime, but do not make their weight felt in chow and grub before an armistice can be no more than threats. Unless the results get into mess kits and on dinner plates in large quantities before the swastika comes down, one might as well talk about winning the war by developments in mud pie processing and preserving. This is not to belittle these partial developments. As a student I respect them. As a working citizen I only feel desperately impatient because the other necessary partial developments are not pressed into action. In general, it takes a great many partial developments to make a working set. Any one of them alone is like a finger without a hand.

Let me illustrate what I mean by these partials. In the laboratories of the University of Wisconsin, so I am told, someone found out that cheddar cheese ripens faster if the foci of inoculation are uniformly distributed. So far as winning the war is concerned, that, unless and until used, was only an academic mud pie. A practical cheese maker found he could get the desired result by grinding and recompressing his green cheese. Practical, but still a mud pie so far as war is concerned. Another manufacturer is now learning to for-

tify whole cheese, at this grinding stage, with needed mineral salts and vitamins. But not until the succession of processes results in an actual acceleration of eating fortified cheese can the development be looked upon as contributing to the war effort.

Let me give you another. A manufacturer who has been drying whey for many years—mostly as an ingredient for poultry feed, but to some successful extent as a bread fortifier—has developed a new fermentation process whey powder. Microorganisms working on the lactose increase the riboflavin content to 40- or 50-fold the amount in the original whey. That particular vitamin is the most grossly deficient of all in our total national food supply ingredients and in that of our allies. There is no substitute for it. Synthetic supplies are curtailed by shortage of ribose. The manufacturer put one plant into operation about a year ago but it was suited only to poultry feed manufacture. He has since demonstrated that as a bread fortifier his product offers the quickest known way of getting big results. He has proved to the satisfaction of practical bakers, large and small scale, and practical bread eaters, that it makes bread more attractive grub. But despite his efforts, he has not yet been able to get materials to build new plants or to alter old ones. This may turn out to be a development in the processing of 1945 grub, but unless we hurry, this may be only a development *during* wartime, but not a development of wartime grub. I think this one will get completed in time to become part of our warfare.

The examples just given illustrate the slowness of putting together all the partials necessary to full fruition. Many other developments in manufacture and packing and selling have fallen far short of easily reached goals because of blind disregard of old blunders. The commonest of these consists of blocking the final stage, consumer acceptance.

Nearly everyone who comes with shining eyes to report on a new dehydrated food begins bragging about how well it will reconstitute. "Put back in exactly the same amount of water," he tells you, "shake it up and let it stand for an hour. Then cook it just as you would cook the fresh article and you can hardly tell the difference." So what? If you can't, then you have just one more imitation and a transportation saving. It seldom seems to occur to them to search for recipes and cookery that make better grub of the new product than can be made of the old. People distrust imitations. More important still, all well fed populations actually want variety—new

good things and more of old good things. The worse fed a population is the more unwilling it is to change its food habits.

Let me give a few examples. So far as I know, the proportion of water to solids in fluid whole milk, may be about right for a newborn calf that has to get its water supply that way. But for adult human beings, milk may be just too wet. Certainly you make better pancakes and waffles and bread and thick soups with milk powder than you can with fluid milk. Starting with whole potatoes and fluid milk or cream you can't get enough water out or enough milk solids in to make the best mashed potatoes. But it can be done starting with riced dehydrated potatoes and dried whole milk.

Another common blunder is the besetting sin of nutritionists who talk about food as though it were just so much chemicals or medicine. People who are sick enough to be scared will take medicine from a doctor but well people don't want doctors for cooks. Roast duck isn't just so much unpronounceable proteins, fats, salts and vitamins—any more than a baby is just two bits' worth of chemicals.

From time to time, my nutritionist friends tell me condescendingly that onions, whether fresh or dried, have very little nutritional value. Maybe they're right, but, on the other hand, maybe they just haven't learned about onions. Whoever is right, it is a fact that cooks like to have peoples' mouths water as they come to the table and to have them leave with contented eyes and well fed breath. They know that lots of dishes with onions will do all these things but will fail without onions. But no cook likes onion eyes. The right answer is dehydrated onions. We'll get more onion soup when cooks don't have to cry into it. If the rest of the soup has high nutritional value and onion smell and flavor make people eat more onion soup, that is enough. What difference does it make whether onions dehydrated in the soup look like fresh onions or not? The place for imitations of fresh onions is in a still life hung in an art gallery.

Most of you know histories of earlier food imitations. The vegetable shortenings and cooking fats are classic examples. The early manufacturers put them out with but little success as imitations of lard. Threats of litigation and of hostile legislation generated by that little success compelled them to begin marketing their products under non-deceptive names. Once housewives learned to use them on their merits, they preferred them to lard for many uses.

Most of them now command a price premium over lard. Honesty, however reluctant, once more became the best policy. To overcome this, some lards are now so processed, packed and labelled as to imitate imitations of lard. No imitation wins until it stops imitating.

There is now one curious case of imitation-evolution in the fish trade. Many years ago California required that some minimum proportion of edible fish taken from coastal waters be processed for human food as a condition to a license to use fish for fertilizer and other non-food products. The pilchard fishermen wanted to put out their food quota labelled as "herring." The Food and Drug Administration halted this as misbranding. The fact that the pilchard is better than herring did not content the packers. People, they said, didn't know about pilchards.

That impasse was broken, or so they thought, by calling them "sardines"—which means only "small fish." But this, in the case of pilchards, was still an imitation, because Americans think of sardines as including only much smaller fishes. It was a lawful imitation but it didn't sell any better for that. For many years the straddle of California's quota law, the insistence on imitation and the failure to study the real merits of pilchards led to a small pack of poor, low-priced product. A few years ago, however, one or two packers had the brilliant idea of hiring a good cook to do marketing research. The cooks learned that pilchards are really good if filleted in such a manner as to miss not only the backbone and ribs but also the black, strong-flavored lining of the body cavity. They also developed good sauces and cooking recipes.

The wartime development in this product is interesting economics. The new product is known in England, by grace of Lend-Lease, as "pilchard fillets." It is well received. But the packers still insist, for the American civilian market, in calling it "sardines" despite the fact that nearly every American knows—wrongly, of course—that anything half as big as one pilchard fillet is too big to be a sardine; and so suspects he is getting gypped. This has a real wartime importance; for several hundred thousand tons a year of pilchards can be taken without depletion of the resource and we desperately need all of the palatable canned fish we can get.

There are a few embryonic developments that will bear close watching. An experimental model roller type hydraulic press, on a new principle, is now being put through its paces in the Regional

Laboratory at Albany, California. As you know, the results of dehydration of vegetables that have a considerable structure of cellulose fiber in them—spinach, celery, parsley and the like—have hitherto been too much like crumbly hay. When these vegetables are run through this press, a thin sheet of bagasse with little but cellulose in it comes out on one side. From the other side comes a stream of slurry containing everything else but containing so little fiber that it can be spray dried. These cellulose-free powders promise to become successful food materials.

The same press, working on alfalfa, turns out a slurry that, spray dried, is superior on protein and vitamin analysis to ordinary alfalfa meals as a poultry feed. But still more important, a hen can thus get far more of her vitamins and proteins from a forage crop instead of from grains. As you know, a hen's tolerance limit for alfalfa or alfalfa meal is set by her limit to break down useless cellulose. The same machine is successful in separating fiber from cane, sorghum and corn stalks for making feeds suitable for hogs. A farm-sized unit can be economically made and operated. To be sure, the immediate products of the press are far from being grub and chow, but they do promise to expand the availability of forage plants and leafy plants for feeding use and, hence, for increasing animal products.

Another concern that has long been successful in food machine manufacture has modified a machine earlier used for meat cutting into a grain cutting or splitting mill. Whole wheat flour made by it is free of the strawlike taste and texture of ground whole wheat flours. Microphotographs show that the wheat germ splits on cleavage planes in such a manner as to leave nearly all of the fat cells unruptured. This may account for the better keeping quality of the flour. This mill also can be made economically in small units. One model is at present mounted on a jeep trailer and run by an engine of the same type as that used in a jeep. This model has a daily capacity of about 15,000 pounds.

Another concern, established several years ago, is now turning out corn germ oil, wheat germ oil, and de-fatted corn germ and wheat germ cereals. The wheat germ oil, in addition to other uses, proves to be a powerful anti-oxidant free from the objections common to most anti-oxidants. It is already in use as a stabilizer of whole milk powder and of shortenings, frying fats and the like. The de-fatted corn germ meal turns out to have an analysis that almost

parallels that of a lean cut of pork. These meals are already in use in admixture with semolina and flours in macaroni and spaghetti and people like them.

There are also a number of elementary processes coming into use that promise well. New heat treatments—both high and low temperature—deserve mention. Perhaps still more important are discoveries of the role of rate of change of temperature. Few people know that ordinary pasteurization of milk destroys more ascorbic acid every year than is produced in our whole citrus fruit output. But a new rate of change of temperature treatment of milk in whole milk dehydration saves nearly all the ascorbic acid and carotene—and saves them in a highly stable and palatable form.

Compression also is now found to be important. A new dehydrated mullet product will illustrate. The mullet, as you know, is a fat fish. But compression of the ground-up dried fish at low temperature—when the fat is a sort of ice—not only keeps the fat from spewing but leaves the compressed cake highly stable and free from rancidity. Compression of other products—tried first as a space saver—turns out also to improve keeping quality as to flavor and as to vitamin stability. I am told that experiments are now going forward in which an inert gas is used to get a high dilution of the air in and around the particles of a food stuff. Then, when a high compression is applied, the residual free-oxygen content is so low that all oxidation processes are slowed down.

Combinations of these new elemental processes are not yet worked out. But it is a good speculation that a foodstuff from which inert fiber and water are removed and from which free oxygen has been excluded will prove to have high keeping values at low unit cost in cold storage, whereas the originals are too bulky and too water-loaded for any kind of safe, economical storage. The next filling of the ever normal granary may contain compressed dry milk solids kept below freezing or with thin paraffin coatings on the blocks. This has already been done—and cheaply—in the drug trade in preserving the potency of certain "biologics" that are extremely unstable in solution or when exposed to moist air.

Another process may come over from the drug trade in making dried fruit juices. Certain liquid preparations are now frozen at extreme low temperatures. The ice cube is then shaved and sprayed into a cold drying chamber. Evaporation direct from ice without liquifying the particles results in a cold dry powder. This is then

compressed and kept in a cold solid cube. It is already known that sharp freezing improves some fruit flavors. Cold dehydration may not only do this but make a stable and cheaply deliverable product. If so, the soft fruits will come into their own.

Thus far I have drawn my examples from recent developments. There is more novelty in them than is commonly supposed. Milk dehydration for instance is not just an increase in quantity turned out by an old process. About the only element in common between the best present practice and practice three years ago is that the water comes out in both. The differences include not only cost reduction but also saving more of what was in the milk and making it more palatable and making it keep longer. So too, with all the other developments.

The great number of developments started and the inevitable slowness of developments in food processing and preserving during wartime will leave us a post war sequel—headache or heritage. The volume of adjustments will be great. This is nothing to be afraid of but is a matter of pride, pride that we did put our backs into starting things right up to the last volley. Suggestions for post war action, based on wartime research, may not help to win the war but they will help to write the peace and to keep that writing legible for the world to read. But toward that great end I can offer little more than guesses that resemble the results of crystal gazing.

Many of the changes in processing and preserving food have been dictated by military necessity. To develop their military characteristics to the highest possible degree, it has been necessary to sacrifice other characteristics of many food items. The increased hydrogenation of fats and oils to make them stand up under torrid desert conditions, packing to stand water immersion and weather exposure, dehydration and compression to save weight and bulk—all these and others may add great military values. A year and a half ago, when there was a desperate need to move more men and cargo, we were losing ships faster than we were replacing them. In such circumstances, it paid to reduce food bulk to a fifth or a tenth by dehydration regardless of loss of palatability. When food supplies had to be landed by air or by submarine in besieged areas, nothing, but military values counted. But the necessity for these military characteristics will vanish as fast as the echoes of gunfire when a general armistice occurs.

When the newly introduced groceries have to make their way

exclusively on the merits of the "vittles" cooks and bakers can (and will) make of them, a lot of war foods will vanish or decline to mere dribbles. I expect this to be the fate of dehydrated meats, excessively hardened fats, tablet ration mixtures, most dehydrated vegetables, most of our egg powders, and others. We have increased vegetable dehydration in the last year to more than thirty times the volume in any year before 1942. Most of that will go. Luckily, most of the driers are attached to canneries that can go back to older types of pack or forward into better containers for water bearing products. For the neutral reaction foods, aluminum and other light metals and new alloys will make it unnnecessary to go back at once to tinned plate.

On the other hand, I expect some items to survive and to increase far beyond pre-war rates of production. Several concerns now have pre-cooked dehydrated beans that consumers prefer to old style canned beans. The new product is far easier to prepare in kitchens than old styles of baked beans; and few cooks have ever learned to make baked beans as good as these new products. Many soy beans uses now seem established. Several types of dehydrated potatoes can be made quickly into attractive potato dishes in which fresh potatoes either can't be used at all or result in an inferior dish. Many of the citrus concentrates will make their way in the candy trade. Most of the dehydrated soups are not only convenient for kitchen use, but allow a range and variety of recipes far greater than do the natural state materials.

Of all the new items, I expect the milk powders and whey powders to make the strongest showing. Powdered whole milk can be brought to the table as drinking milk at about one-half the cost of fluid milk in bottles. Even for long keeping in the pantry, no special cooling is necessary. Supplies for week-end resorts and for restaurrants equipped with mixing machines will find a market welcome. For the skim milk powders and whey powders, bread enrichment has the greatest promise. Even with inferior prewar powders, a few commercial bakers had learned beyond doubt that Americans prefer bread fortified with milk solids up to 10 or 12 per cent of the flour weight by comparison with water dough breads or lower milk content breads.

One of the great technical advantages of milk powder in bread fortification is that the cost per pound loaf delivered to consumers is almost invariant to the price of milk powder. To be sure, milk

powder and whey powder are more expensive per pound than flour, but they also take up far more water than flour does in making a loaf of given seeming dampness. Hence, from a baker's point of view, the cost of fortification by this method is zero by contrast with fortification with non-hygroscopic ingredients. From a consumer nutrition point of view, bread that is well fortified with milk and eaten with a spread that is fortified with the fat soluble vitamins comes close to being a perfect adult food—certainly a far better one than any earlier food of general acceptability and low cost. Fully developed, milk powder fortification of American bread would take something like 900 million to a billion pounds per year—or about 8 percent of the total supply of milk solids not fat. This also is the powder production rate we are now aiming at. But, for obvious reasons we cannot make such a change overnight.

If such a use develops along with other uses for milk solids—whole, skim and whey—we can expect some relocation of dairy farming. At present the dairy cow population density in areas of two or three hundred miles shipping radius is about proportional to the density per square mile of human populations in the same areas. This, in the past, has been forced by the perishability of milk and by its transportation and handling costs.

But good dairy cow country is quite different from good human population country. Take as example the New Orleans milk shed. Many people, as human beings, know about the New Orleans climate but, not being dairy cows, they do not know what that climate would be like if they couldn't sweat freely to control body temperature. If they knew *that*, they would not blame Louisiana dairy cows for giving only about a third as much milk as Pacific Coast state cows or New Jersey cows. There is excellent reason for supposing that increased use of milk powders will result not only in a good deal of dairy farm migration but also in a far fuller utilization of milk in the creamery and cheese areas that now lie outside major fluid milk markets.

The marketing characteristics of milk powders deserve attention. They afford a convenient way not merely of taking off excess supplies in the flush milk season, but of going to the reverse. The real need for milk food also is seasonal but this seasonality almost exactly reverses the seasonality of lactation. In so far as milk powders are used as fortifiers of bread, they may have a demand that varies inversely with income distribution over business cycles. This

will help to relieve the vulnerability of dairymen in the butter and cheese areas; for demand for these two products notoriously goes up and down in step with business booms and depressions.

DISCUSSION BY O. B. JESNESS

University of Minnesota

A discussion of one of Walter Lippmann's columns presents no insurmountable problem, but what is expected of a discussant who has to tackle a contribution from the other Walter, namely Winchell? Lest this be taken too seriously, let me hasten to add that in my humble opinion a certain amount of Winchellian spice is helpful to the digestion in our endeavor to obtain nourishment from the economic diet set before us at meetings and in our journals. I, therefore, desire to commend Professor Canning on the example he has provided for us on this occasion.

Dr. Canning pays his respects to the well-established tendency to look upon foods which are processed or preserved in new forms as substitutes for, or something as good as, the products from which they originally came. There is much to be said for the view that we ought to seek out and develop the features which make the products better—that is, which make them more acceptable rather than merely acceptable. This involves not merely developing and perfecting new processes, but also includes a rather extensive re-education of consumers. In connection with consumer demands, the observation might well be made that they are determined largely, not by what the facts are, but by what the consumers think they are.

In that educational process, may there not be danger of assuming that the consumers are low grade morons lacking sufficient intelligence to understand facts? There is a move on foot to provide a legal christening of dry skim milk so that it will be called to supper by some such euphonious title as "defatted milk solids" or "milk solids other than fat." This is done because over the ages consumers have been led to believe that when it comes to milk, the cream line is the important thing and that "if you save the fat, you save all." The mere mention of skim milk consequently tilts noses skyward in disdain. Why not grasp the head of the herd by the horns and start a program to inform consumers regarding the facts of milk content so that the title "skim" no longer need be one of opprobrium?

It may be granted that this process is not going to be instantaneous. We cling to the past in both food distribution and consumption. The name "Elgin" was used to suggest quality butter long after that area had ceased being important in butter production. The Elgin butter quotation was continued quite awhile past its day of representativeness because the trade had gotten accustomed to it. Maybe science can devise products with more nourishment than steak, but do not expect the gourmet to forsake the thick juicy steak for the new product upon first announcement. The consumer has been fooled at times. Let us not blame him for wanting to be shown.

I agree fully with Professor Canning's view that consumers cannot be expected to accept "ersatz" when the real thing is available and that the longer-run prospects for foods processed or preserved by new techniques will depend largely upon their ability to stand on their own feet. That, in turn, will be determined by the qualities and characteristics of the foods themselves and also by their acceptance by consumers. The first of these calls for continued research in order that facts may be discovered and applied. The second calls for informing consumers so that they may become acquainted with the products and acquire the necessary "know-how" to use them. However, one may fervently hope that the latter process will be truly educational rather than a series of nauseating blurbs and extravagant claims of the patent-medicine variety.

Not all new forms of products are guilty of regarding themselves as substitutes for the real thing. Take breakfast foods as an illustration. Corn flakes never paraded as just corn in another form or as a substitute for mush, but were styled as something new and better. Private brands may have something on this score for producers find it more appealing to advertise their own specialty than to advertise some product in general. Such brands, consequently, may come to play an important part in expanding the use of new processes. This also suggests that the organizations or agencies which process and distribute the new products will play an important part in determining the rapidity of development. Dehydrated soup may be just that in the hands of one concern, while in that of another it may become a boon to the housewife and a delicacy to the family.

A point which merits consideration in any attempt to assay the prospects for new goods or new forms of old goods is that of competition among foods. Limitation of the human anatomy places limits on the total consumption. Any considerable expansion in one quarter, consequently, means inroads on the outlets of other products. If whole milk powder, or even skim milk powder, comes into extensive use in the home, the total consumption of milk may be increased somewhat, but it is likely to be found that dry milk is replacing fluid milk. Metropolitan milk supply involves various features bordering on monopoly. Inspection and sanitary requirements for consumer protection may in addition become an effective limitation on sources of supply. This suggests that some of the new products may have a battle on their hands before they gain full admission into the markets. Disguised trade barriers, and some perhaps without benefit of camouflage, may have quite a vogue. This adds support to the argument for selling products on the basis of their own merits for it will be more difficult to deprive consumers of the right to buy them if they are thus recognized. It will be hard to make the consumer believe that he should not be permitted to buy dry milk for making pancakes if it is better for this purpose than the fluid form.

While no one can foretell how far this development may go, it is possible that over a period of time considerable relocation of an industry might occur in consequence. Fluid milk because of its bulk and perishability is produced near the place of consumption. Milk sheds are determined largely by the location of consuming markets. Dry milk is in a different category.

Like butter, its producing areas will be determined by considerations affecting comparative advantage on the production side. The longer-run changes created by new processes hence may alter the competition among regions as well as among products.

New ideas on human nutrition are enjoying increasing circulation. In general, this situation is one to be encouraged. These ideas probably will come in for increasing play in pushing new products in the future. With no intent of injecting a sour note, a word of caution may be in place. The present reviewer has no basis for claiming competence as a nutritional expert. However, it is no secret that our ideas on foods often are bedeviled by notions of faddists, some of which seem to come from places of considerable respectability. It is to be hoped that we will not be subjected to a barrage of propaganda based on information which apparently is a long way from being perfect or complete.

Do students of nutrition always have appropriate humility in making claims for their findings and hypotheses? A good deal of nutritional research is carried on under the controlled conditions of the laboratory and hence give results which may be the envy of the social scientist who has to use the real world as his laboratory. The results, however, are not applied under laboratory conditions. The economist's favorite assumption of *ceteris paribus* does not apply. Why not admit that there still are a lot of things we do not know about foods and human nutrition before we start people seeking the fountain of perpetual youth in this or that diet? Why not admit that our knowledge of what vitamins do to or for us is far from complete? I confess to being old fashioned enough to believe that food may be a source of enjoyment as well as nourishment and I cherish the hope that we may be permitted to select our foods at least in part by taste preference rather than to be concerned solely with calories, vitamins A to Z, ascorbic acid, riboflavin and other things recorded on a chart and accepted on faith.

Diets are not willingly turned topsy-turvy over night. New methods of processing and preserving food will not come suddenly into general use. Progress is more likely to be gradual. Developments which stand the test presented to them by war emergencies will gain headway because of it, but, if one is to judge by reports floating back from the boys on the firing line, a fresh egg, fresh out of its shell, may still have something not possessed by eggs which have "returned to dust." Progress will continue along evolutionary rather than revolutionary lines, but by capitalizing experience during the war period, we should be able to step up the rate of progress.

DISCUSSION BY R. K. FROKER

University of Wisconsin

The basic principles of food preservation which are being used extensively in this war have long been known. Their application, however, is new in many instances and in others is greatly expanded. This application of science to food processing and preservation has been vividly portrayed by Mr. Canning. But one of the greatest expansions in war food preserva-

tion has taken place in the home due to victory gardens and rationing. This development was apparently overlooked by Mr. Canning in his description of more dramatic processes. The distinction between "mud pies" and war contributions appears to be based upon much too narrow an interpretation of wartime benefits. The reviewer is of the opinion that new developments make their contribution to war effort long before they reach the fighting front. The over-all military strategy depends not only upon the supplies at the front, but also upon the potential and actual production and flow of goods from farms and factories for both civilian and military purposes.

If there is one general weakness in Mr. Canning's paper for a meeting of agricultural economists it is in his limited consideration of the economic phases of these wartime developments. His paper is devoted mainly to a description of the physical processes rather than to a consideration of their economic aspects. One paper could hardly do justice to both. A major development in the processing or use of a product may release a whole series of interrelated changes. For example, the commercial use of whey from cheese factories will have its repercussions upon the farms where it will no longer be available for animal feed. The cheese factory will no longer return whey to farmers and it will be an easier job to return the milk cans washed and sterilized. This, in turn, should improve the quality of the milk. Undoubtedly the handling of the whey will have to be improved so as to maintain at all times a quality suitable for human food. The use of this by-product will place the cheese factory in a more nearly comparable position with condenseries and other whole milk plants in providing a complete use for milk. It is also probable that the commercial use of whey will have some influence on the location of cheese factories, and particularly if large-scale operations are necessary for the economic processing of whey.

The wartime developments in food processing which have been described are not as a whole likely to be of much long term benefit to producers. Certainly they can not be looked upon as a farm relief program after the war. Their chief benefits will probably go to consumers. Here we may note several probable effects: They will probably contribute to an increase in the total supply of products for human food. Low cost foods are likely to compete more sharply than at present with higher priced foods. Competition between vegetable and animal food products is likely to increase not only in oils and fats, but also in protein foods. Synthetic foods are a possibility. These developments point towards a greater variety of foods and a closer price relationship between foods. Improvements in preserving are likely to take place not only in commercial channels, but in private homes as well, although it is highly probable that the emphasis on home preservation of foods will be greatly lessened when the war is over. The net result of these developments will probably be a better American diet and improved general nutrition.

On the farm end I think we can expect more area and regional competition, and perhaps more regional specialization. It seems likely that there will be greater use of by-products. The illustration which Mr. Canning

has given with respect to the use of whey in cheese factories is but one example that might be cited. Improved processing and preservation of foods probably also means further standardization of products and simplification of marketing methods. If this is the case we may expect a continued growth of large-scale organization in the processing and distribution of food products. Those who are interested in monopoly may see in these developments new examples of monopolistic competition and differentiation of products. Some of the developments will undoubtedly mean lower marketing and processing costs. Others will increase these costs. It is probable that the net result will be a widening in the spread between the farmer and the consumer, mainly because of the added services which are likely to be rendered through processing, through the use of by-products and by vitamin enrichment of foods.

It is probable that historians in the future will note the tremendous expansion in dehydration of foods and in vitamin enrichment of foods as the main developments in food processing during this period. They certainly will find an awakening of the public mind to the need for better nutrition.

We will continue to have economic problems of production, marketing and of group relations. The industrial developments in processing and preserving of foods may alter these problems but will probably not contribute substantially to their general solution.

WARTIME TRANSPORTATION OF FARM PRODUCTS*

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THE combination of many independent farmers each owning one or more motor vehicles and of a considerable number of companies and individuals who supply trucking service has resulted in the development of transportation habits and customs that are more or less wasteful of motor vehicle mileage. While inefficiencies were generally recognized, relatively little had been done to ascertain their nature or extent prior to the beginning of World War II. The shortage of strategic materials and of manpower arising out of the war effort now makes it imperative that all transportation be conducted as efficiently as possible. Consequently an increasing amount of attention is being devoted to this problem.

From one standpoint, the scope of this paper is more limited than that suggested by the title, but from another it is more inclusive. It is more limited in that it is concerned chiefly with transportation by motor vehicle rather than by rail, water, or air. It is more inclusive in that it deals with the local transportation of the farm family, and with the local hauling of supplies to farms as well as with the hauling of farm products to local and distant markets.

In the preparation of this paper it has been necessary to draw rather heavily upon a war emergency transportation study made in Martin County, Minnesota by the Division of Agricultural Economics and the Agricultural Extension Service of the Department of Agriculture, University of Minnesota.[1] At other points the present writer has drawn heavily upon the published works of others.

Martin county was selected because it was believed that farm motor vehicle and commercial truck transportation arrangements in this county were fairly typical of most of south central and southwestern Minnesota. It is located about midway in the state from east to west, bordering Iowa on the South. The average size of farm is about 175 acres. It is an important agricultural county producing considerable beef, pork, dairy, and poultry products.

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* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

[1] In connection with this study special acknowledgment is due the Cornbelt Livestock Marketing Research Committee for suggestions as to some of the procedures and the form of some of the schedules used.

One phase of the Martin county study involved the use of motor vehicles at the farm level. A total of 493 farmers supplied information on the motor vehicles owned by them, and on all driving and hauling done by or for them by motor vehicles during the week August 2–8, 1942. A second phase of the study involved the number, age, type, condition and operation of all commercial livestock and general trucks, cream trucks, egg and poultry trucks, and petroleum trucks serving farmers in the county. The information included the kind and amount of product picked up or delivered at each stop, and a map showing the route followed in making each round trip. A third phase of the study included data from all business firms in the towns and villages of the county on the kind and amount of wholesale shipments and receipts during the same week. The data included the point of origin of receipts, destination of shipments, and type of transportation used.

The use of motor vehicles by farmers naturally varies from day to day and from season to season with weather conditions, production, marketing, family, and community factors. Likewise the use of commercial trucks engaged in hauling products and supplies for farmers and the movement of wholesale shipments and receipts from and to business firms vary seasonally. Hence, no single week is fully representative of the entire year. However, the differences probably are more of degree than of kind. It is believed that the data obtained in connection with this study are satisfactory indicators of the situation which prevailed in this area before gas rationing went into effect. Many of the conclusions to which this study leads will apply to other portions of the Mississippi Valley region.

Operations of Farm Owned Motor Vehicles[2]

Eighty-nine percent of the participating farmers owned one automobile either alone or in combination with other motor vehicles, 7 percent each owned more than one automobile with or without other motor vehicles, and the remaining 4 percent each owned one or more trucks but no automobiles. Thus each farmer was equipped with some kind of motor vehicle to meet local transportation and part or all of the farm local hauling needs. The

[2] The discussion on farm owned motor vehicles is adapted from an unpublished manuscript on Reducing Farm Transportation Mileage by A. A. Dowell and S. B. Cleland. For data on cost of operating farm trucks see T. K. Cowden, The Use of Farm Trucks in Marketing Farm Products in Central Indiana, Indiana Agr. Expt. Sta. Bull., No. 443, August 1939.

shift from horse drawn to motor vehicles has taken place during the past three decades. Motor vehicles played a relatively modest part in farm transportation and hauling during World War I, but by the beginning of World War II they had become essential to the efficient operation of corn belt farms.

Of the 493 cooperating farmers, 122 each reported the ownership of one automobile only, and 161 each reported the ownership of one automobile and one automobile trailer only. Other fairly large groups included 57 farmers each owning one automobile and one pickup truck only, and 66 farmers each owning one automobile and one standard truck only. The number and type of motor vehicles owned by the remaining 87 farmers varied greatly. It was believed that the number of farmers included in each of the four groups mentioned was large enough to supply dependable data for purposes of comparison.

Indications are that farmers make considerable use of motor vehicles for hauling about the farm, particularly in summer. Farmers with automobiles only and those with automobiles and trailers used their vehicles on the farm about 3 days during the week while those with automobiles and trucks used their vehicles about twice as often (table 1).

TABLE 1. USE OF MOTOR VEHICLES BY FARMERS OWNING VARIOUS COMBINATIONS, MARTIN COUNTY, AUGUST 2–8, 1942

Combination of Vehicles	Number of farmers	Use of Vehicles during the Week				
		Average number of days used		Average number of miles		
		On-farm	Off-farm	On-farm	Off-farm	Total
Group 1: one automobile	122	3.0	5.1	8.2	113.8	122.0
Group 2: one automobile and automobile trailer	161	3.2	5.2	8.9	122.1	131.0
Group 3: one automobile and one pickup truck:						
automobile	57	2.2	4.0	10.1	108.5	118.6
pickup truck	57	3.4	3.4	13.7	63.4	77.1
Group 4: one automobile and one standard truck:						
automobile	66	3.2	4.4	10.5	109.0	119.5
standard truck	66	3.1	2.0	14.0	41.6	55.6

Off-farm mileage was much greater than on-farm mileage for each type of motor vehicle. The frequency of automobile use off

the farm also was much greater than the frequency of use on the farm. On the other hand, pickup and standard trucks were used about as often on the farm as off the farm.

Farmers with automobiles only averaged nearly one trip a day off the farm during the week (table 2). Nearly one-half, or slightly more than one trip every other business day, were reported as trips to town on business. Trips to work ranked second with an

TABLE 2. TRIPS OFF THE FARM MADE BY 122 MARTIN COUNTY FARMERS EACH OWNING ONE AUTOMOBILE ONLY, GROUP 1, AUGUST 2–8, 1942

Vehicle and nature of trip	Average number of		Proportion of	
	Trips per farm	Miles per farm	Trips	Miles
Automobile				
Town on business	3.1	54.2	48.3	47.6
Recreation	0.7	18.9	11.6	16.6
Church	0.7	9.8	10.7	8.6
Work	1.0	11.7	15.9	10.3
Neighbors on business	0.5	4.1	7.9	3.6
Medical	0.2	6.5	3.0	5.8
Miscellaneous	0.1	8.6	2.6	7.5
Total	6.3	113.8	100.0	100.0

average of 1.0 trip per car. Most of these trips were made to other farms to assist with threshing or other farm work. From the standpoint of number of trips, recreation and church ranked third and fourth, trips to neighbors on business other than to work ranked fifth, trips for medical attention sixth, and miscellaneous trips seventh.

Farmers with automobiles and standard trucks made fewer trips off the farm with their automobiles, but more trips and greater mileage with automobiles and trucks combined (table 3) than those with automobiles only. The chief difference was in the number of trips and miles driven to town on business. From the standpoint of number of trips and distance traveled during the week, farmers with automobiles and trailers were more nearly comparable with those with automobiles only, and those with automobiles and pickup trucks more nearly comparable with those with automobiles and standard trucks.

Seventy-seven percent of the farmers with automobiles only reported the sale of cream during the week and 75 percent reported

TABLE 3. TRIPS OFF THE FARM MADE BY 66 MARTIN COUNTY FARMERS EACH OWNING ONE AUTOMOBILE AND ONE STANDARD TRUCK ONLY, GROUP 4, AUGUST 2–8, 1942

Vehicle and nature of trip	Average number of		Proportion of	
	Trips per farm	Miles per farm	Trips	Miles
Automobile				
Town on business	2.9	50.0	52.9	45.9
Recreation	0.6	26.3	11.0	24.1
Church	0.6	6.8	10.5	6.2
Work	0.6	6.9	10.7	6.3
Neighbors on business	0.3	2.9	5.8	2.7
Medical	0.2	9.7	3.6	8.9
Miscellaneous	0.3	6.4	5.5	5.9
Total	5.5	109.0	100.0	100.0
Standard truck				
Town on business	2.2	35.8	81.0	86.2
Recreation	—	—	—	—
Church	—	—	—	—
Work	0.3	2.8	10.6	6.8
Neighbors on business	0.1	1.1	5.0	2.7
Medical	—	—	—	—
Miscellaneous	0.1	1.8	3.4	4.3
Total	2.7	41.5	100.0	100.0
Automobile and standard truck combined				
Town on business	5.1	85.8	62.2	57.0
Recreation	0.6	26.3	7.4	17.5
Church	0.6	6.8	7.0	4.5
Work	0.9	9.7	10.7	6.4
Neighbors on business	0.4	4.0	5.5	2.7
Medical	0.2	9.7	2.4	6.4
Miscellaneous	0.4	8.2	4.8	5.5
Total	8.2	150.5	100.0	100.0

the sale of eggs (table 4). Only 9 percent reported the sale of hogs, 9 percent grain, 8 percent poultry, 3 percent cattle and calves, and 5 percent miscellaneous items. Thus, during this particular week, most of the farmers in this group were concerned with the sale and hauling of cream and eggs, but relatively few were concerned with the marketing of other farm products. From the standpoint of weight of product sold per farm reporting sales, the most important items were grain, hogs, cattle and calves, miscellaneous products

and poultry. However, cattle marketings were at an extremely low level and hog and poultry marketings were much below other months. Most of the feed grain in this area is fed on the farms where it is produced.

TABLE 4. VOLUME AND METHOD OF HAULING VARIOUS FARM PRODUCTS SOLD BY 122 MARTIN COUNTY FARMERS EACH OWNING ONE AUTOMOBILE ONLY, GROUP 1, AUGUST 2–8, 1942

Products	Farmers Reporting Sale		Amount sold per farm reporting sale	Proportion of sales hauled by		
	Number	Percent of farmers in group		Owner	Trucker	Neighbor
	(number)	(percent)	(amount)	(percent)	(percent)	(percent)
Cream	94*	77.0	86.2 lbs.	59.6	34.2	6.2
Eggs	92	75.4	34.9 doz.	59.9	40.1	—
Poultry	10	8.2	119.2 lbs.	17.5	82.5	—
Hogs	11	9.0	2,077.4 lbs.	9.2	90.8	—
Cattle & calves	4	3.3	692.5 lbs.	—	100.0	—
Grain	11	9.0	5,379.1 lbs.	4.7	59.8	35.5
Miscellaneous	5	4.1	585.8 lbs.	62.5	37.5	—

* One additional farmer sold whole milk instead of cream and this is included in the miscellaneous item.

TABLE 5. VOLUME AND METHOD OF HAULING VARIOUS FARM PRODUCTS SOLD BY 66 MARTIN COUNTY FARMERS EACH OWNING ONE AUTOMOBILE AND ONE STANDARD TRUCK ONLY, GROUP 4, AUGUST 2–8, 1942

Products	Farmers Reporting Sale		Amount sold per farm reporting sale	Proportion of sales hauled by		
	Number	Percent of farmers in group		Owner	Trucker	Neighbor
	(number)	(percent)	(amount)	(percent)	(percent)	(percent)
Cream	50*	75.8	124.6 lbs.	66.7	30.1	3.2
Eggs	48	72.7	38.5 doz.	58.0	39.6	2.4
Poultry	5	7.6	72.8 lbs.	41.2	58.8	—
Hogs	9	13.6	3,635.0 lbs.	88.9	11.1	—
Cattle & Calves	7	10.6	2,039.3 lbs.	65.6	34.4	—
Grain	14	21.2	7,831.9 lbs.	91.4	—	8.6
Miscellaneous	6	9.1	944.5 lbs.	21.6	78.4	—

* Five other farmers reported the sale of milk instead of cream. Three of these reported the amount of milk sold, and this is included in the miscellaneous item.

In general the amount of product sold per farm reporting sales was greater in the case of farms with automobiles and trailers than those with automobiles only, and greater on farms with trucks than on those without trucks (table 5). This suggested that the farms with trucks were larger business enterprises than those without trucks, and that those with trailers were somewhat larger than those with automobiles only. An examination of AAA records of the individual farms proved this assumption to be correct. Farms with automobiles only averaged 168 acres, those with automobiles and trailers 176 acres, automobiles and pickup trucks 222 acres, and automobiles and standard trucks 233 acres. The acreage of corn

TABLE 6. VOLUME AND METHOD OF HAULING VARIOUS FARM SUPPLIES PURCHASED BY 122 MARTIN COUNTY FARMERS EACH OWNING ONE AUTOMOBILE ONLY, GROUP 1, AUGUST 2–8, 1942

Supplies	Farmers reporting purchases		Amount bought per farm reporting purchase	Proportion of purchases hauled by		
	Number	Percent of farmers in group		Owner	Trucker	Neighbor
	(number)	(percent)	(amount)	(percent)	(percent)	(percent)
Groceries	103	84.4	54.3 lbs.	98.5	1.4	0.1
Machinery & repairs	36	29.5	28.1 lbs.	100.0	—	—
Sacked feed	28	23.0	457.1 lbs.	100.0	—	—
Grain	8	6.6	1,683.9 lbs.	15.3	84.7	—
Tractor fuel	6	4.9	60.8 gal.	—	100.0	—
Gasoline	11	9.0	81.4 gal.	—	100.0	—
Miscellaneous	38	31.1	1,070.7 lbs.	18.5	81.2	0.3

oats, barley and mixed grain, and of all crops combined increased with size of farm. The number of the different species and classes of livestock which are important in the area also tended to increase with size of farm. Farmers in each of the four groups averaged about the same distance from town and were served by about the same type of road. Consequently the combination of motor vehicles on farms in a given type of farming area appears to depend largely upon size of farm.

Supplies delivered at the farms during the week included groceries, machinery and repairs, sacked feed, grain, tractor fuel, gasoline, and miscellaneous commodities. Most of the farmers in each group reported the purchase of groceries during the week

(tables 6 and 7). About one-third reported the purchase of machinery and repairs (chiefly repairs) and about one-fourth purchased various miscellaneous items. The most significant difference between the various groups occurred in connection with the purchase of grain. Farmers with the largest number of livestock and poultry purchased the most feed.

TABLE 7. VOLUME AND METHOD OF HAULING VARIOUS FARM SUPPLIES PURCHASED BY 66 MARTIN COUNTY FARMERS EACH OWNING ONE AUTOMOBILE AND ONE STANDARD TRUCK ONLY, GROUP 4, AUGUST 2–8, 1942

Supplies	Farmers Reporting Purchases		Amount bought per farm reporting purchase	Proportion of purchases hauled by		
	Number	Percent of farmers in group		Owner	Trucker	Neighbor
	(number)	(percent)	(amount)	(percent)	(percent)	(percent)
Groceries	51	77.3	52.3 lbs.	98.2	1.8	—
Machinery & repairs	24	36.4	135.6 lbs.	100.0	—	—
Sacked feed	18	27.3	479.2 lbs.	100.0	—	—
Grain	15	22.7	27,673.6 lbs.	100.0	—	—
Tractor fuel	3	4.5	120.0 gal.	—	100.0	—
Gasoline	9	13.6	104.4 gal.	—	100.0	—
Miscellaneous	16	24.2	6,387.5 lbs.	21.6	78.4	—

All of the products sold from and supplies delivered to these farms were hauled in motor vehicles owned by the farm operators or by their neighbors or by commercial truckers. There was considerable variation among farmers who owned the same type of motor vehicle or combination of vehicles in the methods employed to transport some products to market. For example, of the 103 farmers with automobiles only who reported the sale of cream or eggs or both, 55 transported all of these products in their own or in their neighbors' vehicles, 19 employed truckers to render all of this service, and 29 used both farm vehicles and outside trucks. Of the 55 farmers who transported these products entirely with farm vehicles 42 hauled for themselves only, while 13 also hauled for neighbors, usually on an exchange basis. Of the 19 who relied entirely upon truckers, 13 sold both products and 12 of these employed separate truckers for the cream and for the eggs. Of the 29 who used both farm vehicles and commercial trucks, 13 hauled cream for themselves only or for themselves and neighbors, but

turned the hauling of eggs over to truckers, 11 hauled eggs for themselves only or for themselves and neighbors, but employed truckers to haul all of the cream, while 5 transported some of the cream or eggs or both in their own or in their neighbors' vehicles and some in outside trucks. The picture was much the same in the case of the other three groups which suggests that the type of motor vehicle or combination of vehicles on farms had little effect upon the method employed in transporting cream and eggs to

TABLE 8. EXTENT OF COOPERATION WITH NEIGHBORS IN THE USE OF MOTOR VEHICLES BY FARMERS OWNING VARIOUS COMBINATIONS OF VEHICLES, MARTIN COUNTY, AUGUST 2–8, 1942

Combination of vehicles	Proportion of farmers reporting taking neighbors along	Proportion of trips with neighbors along	Proportion of farmers reporting serving neighbors	Average number of neighbor families served per vehicle on farms
	(percent)	(percent)	(percent)	(number)
Group 1. 122 farmers each owning one automobile	45.1	16.3	55.7	1.3
Group 2. 161 farmers each owning one automobile and one automobile trailer	50.9	15.9	60.2	1.4
Group 3. 57 farmers each owning one automobile and one pickup truck				
Automobile	35.1	15.2	42.1	0.8
Pickup truck	19.3	7.2	36.8	0.7
Group 4. 66 farmers each owning one automobile and one standard truck				
Automobile	42.4	13.3	47.0	1.0
Standard truck	12.1	7.0	24.2	0.7

market. About the same proportions were hauled in the farmers' own vehicles, by truckers, and by neighbors in each of the four groups. On the other hand, farmers with automobiles and standard trucks hauled a higher proportion of hogs, cattle and calves, and grain in their own vehicles than any of the other groups and those with automobiles and pickup trucks, and automobiles and trailers hauled higher proportions of these products than those with automobiles only. The combination of vehicles had no appreciable ef-

fect on the kind or amount of products hauled for these farmers by their neighbors.

In the case of all four groups, most of the groceries, and machinery and repairs were hauled in the farmers' own vehicles, while practically all of the tractor fuel and gasoline were delivered by outside truckers. The most important differences were found in the case of grain and miscellaneous products. Relatively small amounts of these supplies were hauled by farmers with automobiles only.

Relatively little organized effort appears to have been made by these farmers to cooperate with their neighbors in the use of motor vehicles either for transporting persons or hauling farm products and supplies. This is indicated by the relatively small proportion of trips on which neighbors were taken along (table 8), the small amount of farm products hauled to market for these farmers by their neighbors (tables 4 and 5), and by the relatively small amount of farm products and supplies hauled by these farmers for their neighbors.

Commercial trucks hauling various farm products and supplies passed many of the farms in each group regularly. These included among others separate trucks hauling cream, eggs and poultry, livestock, and oil. From the standpoint both of the proportion of farmers reporting and the average number of trucks of various types passing the reporting farms regularly, it appears that commercial trucks for hauling farm products and supplies were readily available to farmers of each of the four groups.

Operations of Commercial Trucks

The results of the Martin county study indicate wide variations in the efficiency of trucks engaged in hauling the same product.[3] Some were highly efficient and others very inefficient. Some were operated efficiently at one time but inefficiently at others. In general there was much overlapping of individual trips and routes, considerable crosshauling, and many light loads, loads that frequently were far below normal capacity. The conclusion was reached that if certain efficiency measures were adopted fewer trucks could render the same total transportation service, or the

[3] This study did not include operating costs and hence throws no light upon relative economy of trucks of various types and sizes when used for various purposes. For data on operating costs see C. M. Hardin and T. K. Cowden, Transportation of Farm Products in Central Indiana by Commercial Truckers, Indiana Agr. Expt. Sta. Bull. No. 446, May 1940.

same number of trucks could handle a considerably larger volume of business.

One of the problems involved in such studies centers around the development of a suitable measure or measures of efficiency. This was particularly vexing in the case of trucks engaged in hauling livestock. Whereas the number of pounds or gallons of product picked up or delivered per mile traveled may be an entirely satisfactory measure of efficiency in the case of some products, it is satisfactory for trucks engaged in hauling livestock only when trucks of the same size and type are engaged in hauling the same class, grade, and weight of livestock between the same points of origin and destination. Situations of this sort are the exception rather than the rule. Consequently it was necessary to develop other efficiency measures for the more usual situations. It was found that percent net-capacity was a useful measure under certain conditions, more particularly for below normal capacity loads, and that percent gross-capacity was a useful measure for capacity or above capacity loads.[4] Gross-capacity refers to the weight of the empty truck plus the weight of the livestock hauled. The Office of Defense Transportation has developed a formula whereby the normal gross-capacity of a truck is determined by number and size of tires, and number of plies per tire. When loaded at the normal carrying capacity of the tires the truck is said to be loaded at 100 percent gross-capacity. The difference between 100 percent gross-capacity and the weight of the empty truck represents normal or 100 percent net-capacity. Thus a truck loaded at 100 percent gross-capacity also is loaded at 100 percent net-capacity. In relatively few cases, however, are trucks loaded exactly at 100 percent capacity. The reason why percent net-capacity is usually a more useful measure for light loads than percent gross-capacity is because the relationship between the empty and loaded weight of a truck varies somewhat among trucks of the same general type and varies greatly among trucks of different types. In a study which included different types of vehicles unloading livestock at various types of markets in Minnesota in July 1942, it was found that the tires of commercial semitrailers carried on average of 48 percent gross-capacity when the trucks were empty; commercial standard trucks, 51 percent; farm pickup trucks, 76 percent; and farm auto-

[4] It is to be expected that these measures of efficiency will be refined or perhaps replaced by others as additional research is brought to bear on this problem.

mobile trailers, 30 percent.[5] The percent gross-capacity is usually a more useful measure of efficiency than percent net-capacity in the case of capacity loads because it gives the relationship between actual tire load and normal tire capacity.

Variations in size and type of trucks, together with the usual variations in routes traveled and services rendered on individual trips, make it impracticable to use any one of the suggested efficiency measures for all conditions. In some cases pounds livestock hauled per mile is most useful, in others the percent net-capacity, and in still others the percent gross-capacity. In some cases all three factors are useful in determining relative efficiency.

Wholesale Movement in and out of a Region

The proportions of wholesale receipts and shipments transported by truck and by rail for business firms probably vary considerably from area to area and from season to season within a given area. Receipts may exceed shipments at one time while shipments may exceed receipts at another. The total movement in and out of an area naturally varies with the type of farming, size of the urban population, and kind and extent of urban activities.

Data obtained in the Minnesota study as well as by other wokers[6] suggest that total receipts in a given country or area by truck commonly do not equal total shipments by truck, and that total receipts by rail commonly do not equal total shipments by rail. Even greater variations are found in the relationship of receipts to shipments between a particular area and a given outside trade center. In some cases much the greater part of the movement is in one direction so that, regardless of the type of transportation used, some of the vehicles must, under existing arrangements, move empty or partly empty either on the outbound or inbound portion of the round trip. In other cases, the total movement to a given market center may about equal the movement in the opposite direction, and still many motor trucks and railroad cars may move empty or partly empty on one leg of the trip. Thus suggests the possibility of reducing total over-the-road transportation mileage

[5] A. A. Dowell, A Study of Livestock Trucks at Minnesota Markets. Minn. Agr. Expt. Sta., Miscellaneous Report 2, June 1943, p. 8.

[6] Herman M. Haag and Victor Gray, Transportation of Certain Commodities into and out of Moniteau County, May 21–27, 1942, University of Missouri, Mimeographed, July 1942; H. P. Hanson and A. A. Dowell, Transportation of Various Commodities by Rail and Truck into and out of Martin County. University of Minnesota, Mimeographed, November 1942. 3 pages.

either by redirecting the flow of in-bound and out-bound shipments or by better coordination of the movement by truck and by rail or perhaps both.

Suggestions for Reducing Transportation Mileage

The formulation of plans for reducing motor vehicle mileage is more complicated than it may at first appear. In the first place, there are many individual producers whose transportation habits and market preferences differ considerably. In the second place, there are many independent truckers each owning one or more trucks. The problem also varies according to type of vehicle and use to which it is put. It is probably most complicated in the case of farm motor vehicles with livestock trucks ranking second, oil trucks third, egg and poultry trucks fourth, and cream and milk trucks fifth.

The complexity of the farm motor vehicle problem is due to the fact that farm vehicles may be used to haul livestock, cream and eggs, and poultry in addition to various other business uses both on and off the farm, and to the use of the automobile or truck by the farm family. In some cases it is difficult to distinguish between family and farm business uses. The complexity of the problem in the case of commercial livestock trucks is due to the fact that seldom are two trips exactly alike. This is especially so in the case of local pickup trips. Farmers have become accustomed to demanding prompt service even though only one or a few animals were to be picked up at one time. The independent trucker has responded rather promptly to the call of the individual farmer even though considerable mileage often was involved in picking up one or a few animals. The trucker feared that if he did not render prompt service the farmer would transfer his business to a competitor. He felt obliged to make many local trips on which receipts did not cover operating expenses in order to create and maintain good will among the farmers.

In some respects the situation in the case of oil trucks is much the same as with livestock trucks. Farmers have demanded prompt service even though it involved considerable mileage to deliver a small amount of product. The principal difference between the two arises out of the fact that livestock trucks are engaged in both local and long distance hauling while oil trucks serving farmers are engaged almost entirely in local hauling.

On the other hand, most cream and milk trucks and many egg and poultry trucks follow regular routes at regular intervals. However, special poultry trucks make separate trips much as is done by livestock trucks when engaged in local hauling.

Farm Owned Motor Vehicles

Suggestions for bringing about greater efficiency at the farm level include (1) better planning of trips with farm motor vehicles, (2) greater cooperation with neighbors in the use of farm vehicles, and (3) greater use of commercial trucks for hauling farm products and supplies.

Better Planning of Trips. It appears that considerable reduction in mileage of farm motor vehicles could be effected through more careful planning of trips. The place to begin the search for ways and means of reducing mileage is at the point of greatest use and that is in connection with trips to town on business. It is of course true that all trips cannot be planned in advance. Nor can the importance of the trip be measured by the number of people transported or by the weight of the items hauled. In the event of a breakdown at critical times, an immediate trip to town may be exceedingly important even though the weight of the necessary repair part is insignificant. The second most important use of farm motor vehicles from the standpoint of mileage is for recreational purposes and it should be possible to bring about some savings here without undue hardship. Part of the need for social contacts and other recreational activities can be, and are being, met in connection with trips to town on business, and many people are finding it possible to satisfy recreational needs nearer home than was common before the war. Better planning also should make it possible to effect savings in connection with trips for other purposes.

Greater Cooperation with Neighbors. It should be possible to bring about further savings in farm transportation and hauling mileage through greater cooperation with neighbors in the use of motor vehicles. The fact that farmers found it desirable and practicable to cooperate even to a limited extent before gas rationing suggests that this could be carried much further during the emergency. Opportunities are greater in thickly settled than in sparsely settled areas, and greater in communities where most of the farms are equipped with telephones than in communities where telephones are not available or are installed in a small proportion of the farm

homes. On the other hand, possible savings per farm increase with the distance to be travelled.

Greater Use of Commercial Trucks. Farmers also could make more general use of commercial trucks and thereby conserve farm transportation resources. This would be relatively simple in areas where commercial livestock, grain, cream, egg and poultry and oil trucks are readily available to most farmers as was the case in the Minnesota study. One difficulty arises out of the fact that little or no additional mileage is involved when farm products are hauled in connection with trips made primarily for other purposes and it is probable that many combination trips of this kind are made by farmers. There is also a tendency among farmers owning automobile trailers, pickup trucks and standard trucks to make trips to market with loads which average lighter in relation to normal carrying capacity than is the case with commercial trucks.[7] In other words, although the vehicle may have been purchased primarily for use on the farm, it is also used for market trips that would not justify the original cost and upkeep if used only for this purpose.

Commercial Trucks

The cooperation of farmers and truckers will be necessary to bring about the greatest possible efficiency in the use of commercial trucks for hauling farm products and supplies. Specific suggestions and alternative plans have been developed by various workers for livestock, cream, milk, eggs and poultry, and oil trucks. In the case of livestock trucks the most important suggestions include the advance listing of livestock, limiting truck pickup service to one or more days of the week depending upon the volume to be hauled, fitting the truck to the task, avoiding overlapping, crosshauling, and the roundabout movement of livestock from farm to packing plant or farm to farm, and in the case of over-the-road movement, capacity market loads and return loads whenever available. Alternative plans for putting these suggestions into effect vary all the way from a simple voluntary agreement among farmers to notify the trucker of their choice well in advance of the time the animals are to be marketed, to the adoption of graduated trucking rates by local truckers, to private local trucking associations, to local co-

[7] A. A. Dowell, A Study of Livestock Trucks at Minnesota Markets, Minnesota Agricultural Experiment Station Miscellaneous Report 2, June 1943.

operative marketing associations organized by and for farmers.[8] It is apparent that substantial savings can be made through better organization of trips both at the local and distant market levels.[9]

In the case of oil trucks, farmers can help reduce delivery mileage by providing themselves with sufficient storage space on the farm so that a considerable quantity can be delivered at one time and by placing orders for these products well in advance of the time they are needed. Other suggestions include the elimination of special services such as trips to collect credit accounts, dropping or exchanging isolated patrons, zoning trade areas, discontinuing the delivery of small volume, arranging definite truck routes, and selling on the basis of standards rather than private brands.[10]

Truck operations have been studied more extensively and the formulation and actual adoption of plans for reducing truck mileage have progressed more rapidly under the pressure of the war emergency in the case of specialized cream[11] and milk[12] trucks than has been the case with trucks engaged in hauling other farm products and supplies. Plans for reducing truck mileage include among others the reorganization of truck routes to prevent overlapping, crosshauling, and the serving of isolated patrons, the delivery of the product by each producer at a convenient place on the main high-

[8] A. A. Dowell, Reducing Livestock Truck Mileage, Minn. Agr. Expt. Sta. Bull. 369, June 1943.

[9] Herman M. Haag, Transportation of Livestock in the Boone County Area, with Estimates of Possible Savings, University of Missouri, Mimeograph, April 1943, 27 pages; Sam H. Thompson, Saving Tires and Trucks in Livestock Hauling, Iowa State College, Leaflet No. 3, Mimeograph, February 22, 1943, 4 pages.

[10] W. T. Maakestad and Frank Robotka, Farm Petroleum Delivery, Iowa Agr. Expt. Sta. Bull. P 52. February 1943; E. Fred Koller, Reducing Oil Truck Mileage, University of Minnesota, Mimeograph, October 1942. 1 page.

[11] Frank Robotka and Richard L. Morse, Tire Rationing and Butterfat Transportation, Iowa State College, Memo. No. 4. Mimeograph, March 23, 1942; W. H. Dankers and E. Fred Koller, Creamery Truck Condition and Operation in Martin County, August 2–8, 1942, University of Minnesota, Mimeograph, November 1942, 2 pages; E. Fred Koller, Reducing Creamery Truck Mileage, University of Minnesota, Mimeograph, October 1942, 2 pages; Wartime Problems in Milk Transportation, Economic Information for Wisconsin Farmers, University of Wisconsin, Special Circular, Vol. 14, No. 4. April 1943.

[12] Alan MacLeod, W. E. Carpenter, and J. A. Hitchcock, Possible Savings in the Assembly of Milk: A Study of Country Hauling in Northern Vermont, Bureau of Agr. Economics, Mimeograph, November 1942, 32 pages; E. H. Matzen and V. C. Manhart, Preliminary Report of Wartime Transportation Survey of Trucks Assembling Milk and Cream from Indiana Producers. Purdue University, Agricultural Economics Mimeograph No. 26, August 1942, 8 pages; Herman M. Haag and J. E. Crosby, Jr., Possibilities of Savings in the Transportation of Milk in the Missouri Portion of the St. Louis Milkshed, University of Missouri, Mimeograph, March 1943, 23 pages; Herman M. Haag and J. E. Crosby, Jr., Milk Transportation Conservation Plans, University of Missouri, Mimeograph, March 1943, 24 pages.

way, and a reduction in frequency of collection. Due to perishability milk, cream and eggs amust receive careful attention from the time they are produced on the farm until they reach the consumer, and this must be considered in the formulation of plans for conserving transportation mileage.

The problem in the case of regular route egg trucks is much the same as for cream and milk trucks except that egg truck routes frequently are much longer and in such cases possible savings are greater. Poultry trucks are more nearly comparable to livestock trucks engaged in local assembly. Trips often are made over considerable distances to pick up relatively small volume. Consequently suggestions for increasing the efficiency of egg and poultry trucks[13] do not differ greatly in principle from those which apply to trucks hauling cream and milk on the one hand, and livestock on the other.

Better Organization of In-bound and Out-bound Movement

Attention also should be directed to the possibility of reducing total truck and rail mileage by better coordination of the movement of products and supplies out of and into a given area. Under certain conditions and in certain areas this may involve greater reliance upon rail and less upon truck transportation. In other instances the reverse may be true.

In an effort to bring about greater efficiency during the emergency the Office of Defense Transportation has authorized the establishment of Joint Transportation Offices at such points and places as it may approve.[14] The principal objective of such organizations is to avoid situations whereby city trucks hauling to the country and country trucks hauling to the city both return empty or partly empty. This is especially important in the case of livestock trucks. Individual truckers found it exceedingly difficult if not impossible to obtain return loads. Some of the difficulties involved include Federal and State transportation regulations and regulations

[13] A. D. Oderkirk and Richard L. Morse, Economy in Transportation of Eggs: War Emergency Considerations, Iowa State College, Memo. No. 2 (Revised). July 13, 1942, 27 pages; A. D. Oderkirk and Richard L. Morse, Economy in Transportation of Market Poultry: War Emergency Considerations, Iowa State College, Memo. No. 6, May 2, 1942, 20 pages; E. Fred Koller and W. H. Dankers, Egg and Poultry Truck Condition and Operation in Martin County, August 2–8, 1942, University of Minnesota, Mimeograph, November 1942, 3 pages.

[14] General Order O.D.T., No. 13. Part 501—Conservation of Motor Equipment, Subpart I—Establishment of Joint Information Offices, July 2, 1942.

adopted by organized labor. Some progress has been made towards the removal of these barriers but much remains to be done if maximum efficiency is to be achieved.

Other Wartime Considerations

The demand for strategic materials and manpower for war purposes has been so great that the manufacture of trucks for civilian use was temporarily discontinued. The loss of our usual supply of natural rubber curtailed the manufacture of tires, and war needs have forced a sharp reduction in the domestic supply of motor fuel. It is not yet clear when limitations on supplies will be removed. In the meantime it appears to be the part of wisdom to assume that fewer commercial trucks will be available to handle the same or perhaps a greater volume of business. The elimination of all unnecessary truck mileage, the manufacture of necessary repair parts, the recapping of old tires, and the manufacture of some new tires will do much to relieve the situation at least temporarily. However, if the war continues over an extended period and strategic materials and manpower cannot be released to manufacture a sufficient number of new trucks and tires to replace those worn out, it may be necessary to draw upon the reservoir of trucks now on farms to insure the prompt movement of farm products and supplies. When and if this situation arises it may be necessary to make available automobile trailers to farmers who release their standard trucks for more general use.

Conclusions

It is apparent that many inefficiencies are to be found in the movement of farm products and supplies by farm owned and commercial motor vehicles. These occur in varying degree at the farm, local community, and distant market levels. It is not to be expected that transportation customs and habits that have developed gradually over a period of years will be changed overnight. However, many adjustments are being enforced by wartime needs. In the formulation of plans for additional savings it will be necessary to balance transportation efficiency against marketing efficiency, against over-all labor efficiency, and against the need for prompt action in the case of emergencies. However, these should not be used to justify wasteful use of transportation resources. It is to be hoped that ways and means will be found to project some of

these savings into the future as one means of reducing distribution costs.

DISCUSSION BY HERMAN M. HAAG

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Our experiences in Missouri have caused us to reach certain conclusions as to the kinds of committees and programs which would seem most likely to succeed in attaining the maximum savings in mileage without extensive federal regulation.

The first conclusion concerns the area to be served by the so-called "industry" committees. As you probably know, the Office of Defense Transportation is attempting to attain savings in transportation through the establishment of committees organized by the various agricultural industries as dairy and livestock. To date, the Office of Defense Transportation is thinking in terms of a milkshed for the development of milk transportation conservation plans and in terms of Office of Defense Transportation districts, usually covering about 20 or more counties, for the development of livestock plans. In other words, the industry committee is expected to prepare a plan for a large area or district. Our experience indicates that such an area or district is too large a unit for the development of conservation programs even for dairy products. The proper unit is more nearly the county, or a segment of a milkshed involving a small number of milk collection routes. Local committees set up on the basis of these small units are acquainted sufficiently with local conditions to work out a rerouting of milk trucks or to develop rules for the handling of livestock.

That local committees would be more practicable is to be expected. Trucking conditions are not the same in each county or in each segment of the milkshed, and plans should be made to fit the peculiar conditions of any locality. Also, it is much easier for members of a local committee to meet and agree upon mutual problems. Furthermore, programs developed by local representatives continuously receive greater support than those developed at area or state levels.

The Office of Defense Transportation still clings to the idea of area or district industry committees because membership of each such committee must be approved by the national office in Washington, D. C. It is to be admitted that approval of thousands of local committees would involve endless detail. Nevertheless, it appears that procedures will have to be modified to provide for local industry committees if the industry committee program is to be reasonably effective.

Although it is my feeling that local committees should prepare plans and submit them direct to the Office of Defense Transportation, state and area committees may be used to great advantage as a means of coordinating the programs in the various localities. The existence of a Missouri State Livestock Industry Transportation Committee, which has made its program effective through the Agricultural Extension Service, has tended to make the county programs more uniform than otherwise would be the case.

A second conclusion is that the idea of industry committees in the field of agriculture is not very realistic. As Dr. Dowell has pointed out, studies reveal that most trucks used for hauling farm products are used for a wide variety of purposes and cannot be classified satisfactorily as milk trucks, livestock trucks, or grain trucks. Trucks used for hauling milk to market are used to haul back feed and groceries, to spread lime and for whatever other hauling the owner can find to do.

A more realistic approach to the problem in most counties, in Missouri at least, would have been the establishment of one committee to deal with all phases of farm-to-market and market-to-farm transportation by trucks owned within the county. In some ways, such a committee would be similar to the county farm transportation committees set up by the United States Department of Agriculture War Boards.

A third conclusion is that most Americans will cooperate with a sound, locally developed conservation program but some have to be forced to participate. Much saving has already resulted in Missouri from the voluntary cooperation of truckers and producers but these are beginning to grumble because they have made sacrifices while others continue prewar wastefulness.

So far, the Office of Defense Transportation has not developed a forceful means of controlling trucks used for transporting farm products. A few years ago, we talked about an economy of scarcity; today we have a "scare" economy. The Office of Price Administration is trying to scare prices down and the Office of Defense Transportation is trying to scare truckers into saving mileage. Bluffing works for a while but soon becomes ineffective if a more substantial means of control is lacking. The Office of Defense Transportation could force action by a reduction of gasoline allotments but as far as truckers of farm products are concerned, such reductions are very uncommon.

The importance of a forceful policy with a few persons to promote the good of many was illustrated in north Missouri. Three persons blocked the rerouting of milk trucks in one area involving about 50 producers. As a result, those who previously wanted to go along with the program are now hesitant about cooperating.

A fourth conclusion is that programs should be made to fit the peculiar conditions of the industry or group affected. Savings are readily worked out for milk and cream where producers are served by definite routes, but plans for reducing mileage used by livestock truckers must take a different approach. These plans in Missouri are taking the form of rules which producers, truckers and livestock dealers are expected to follow. A few of the rules which county committees have proposed follow:

1. Truckers should not be asked to haul loads of less than ODT normal capacity to a market more distant than 25 miles and should refuse such requests when they are made.

2. Producers with less than full truckload shipments should list their livestock with the trucker (or clearing office) one week in advance of desired shipping date.

3. The same shipment of livestock should be listed with only one trucker (or station) at one time.

4. Less than truckload shipments of livestock should not be made from the same farm more often than once in two weeks—except in cases of emergency.

5. Truckers should advise producers when livestock cannot be hauled within the week listed.

6. Truckers should exchange listings of shipments when the livestock can be picked up more advantageously by so doing, and advise the producer of the proposed exchange.

7. Neighboring producers may group their livestock shipments into full truckloads, preferably on one farm, and have them hauled on the same basis as an individual with a full truckload.

8. Producers should have chutes for loading livestock, located at places easily accessible to the truck.

9. Producers should have livestock ready for loading at the time the trucker has said he will arrive and the trucker should endeavor to arrive at the farm at that time.

10. Truckers should not be expected to pick up livestock on muddy roads.

11. Back hauls and cross hauls should be avoided, in as far as is practicable, in moving livestock from one producer to another or from producer to terminal market.

12. Truckers should attempt to arrange loads so as to reduce the number of places to unload at the market, when the mileage saved at the market overbalances the extra mileage required in pickup. When this is done, producers should state, at the time of listing, where less than full truckload shipments are to be delivered.

13. Truckers should endeavor to secure back hauls from terminal markets by:

(a) Contacting a Joint Information Office

(b) Securing a temporary permit from the Public Service Commission

(c) Other means.

14. Trucks should not be used to drive from farm to farm to buy livestock.

15. Pickup trucks should not be used to transport livestock more than 25 miles to an established market.

These rules for livestock trucks may not be as effective as rerouting of milk trucks, but they are an attempt to make plans which will fit the particular needs of the industry.

A fifth conclusion is that plans should be simple. Most Washington regulations are too complex and very often involve reports which only statisticians and accountants could prepare. The Office of Defense Transportation has been no exception. Few of the independent livestock truckers in Missouri are able to keep the records necessary to complete the reports requested by the Office of Defense Transportation. Instead, such truckers are "estimating" mileages and other facts needed for the blanks. Such a

situation is causing more ill-will toward the Office of Defense Transportation on the part of truckers hauling farm products than any other regulation. In this case, it would seem that periodic checking of truckers in the field and less desk work in offices would be desirable. Examiners working in the field could obtain information which would be much more reliable than that recorded on many of the reports submitted by truckers.

The requirement that all truckers clear with a joint information office in large markets is not only complex but contrary to research facts. It has been definitely established that most return loads are contracted for in the local town or community and not in the markets. If the trucker attempts to cooperate with the local certificated carrier of dry freight in hauling return loads, this should eliminate the need for contacting a joint information office before making a return trip.

A sixth conclusion concerns the part which the state educational agencies should play in the development and administration of transportation conservation programs. It is our belief that the Agricultural Experiment Station and the Agricultural Extension Service should take a very active part in the development of transportation conservation programs even to the extent of initiating such programs. When the programs have been developed, however, it seems to us that the Office of Defense Transportation should then take full responsibility for the administration of the programs. In other words, the educational agencies should help develop but not administer the programs. There are two very good reasons for having state agencies help in the development of the programs. In the first place, if the state agencies take an active part in these programs, greater responsibility will be shifted to the local groups and less of it will be assumed by the district, state and federal agencies. This helps to assure that local programs will be really local in character. Secondly, the personnel of the Office of Defense Transportation district and regional offices generally have been trained in the field of transportation of dry freight rather than of farm products. By cooperating closely with the Office of Defense Transportation, county agents, teachers of vocational agriculture, and others in the field of adult agricultural education can provide the agricultural background which the Office of Defense Transportation personnel generally lacks.

MEASURING MAXIMUM CONTRIBUTION TO FOOD NEEDS BY PRODUCING AREAS*

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IN THIS year's cooperative study of Agriculture's Maximum Wartime Production Capacity,[1] emphasis was placed on marshalling all reserve farm resources and on developing those shifts in the combinations of enterprises which would result in "the maximum output of essential farm products per unit of farm resources." By specific design, price assumptions were omitted from the frame of reference. Interest centered on the question of how far agriculture could really go in an all out effort to meet wartime food needs if the hampering restrictions of existing price relationships were stripped away and the problem reduced to a realistic physical resource basis. Knowing the physical production capacities, it might then be possible to suggest the pattern of prices and other economic measures required to achieve maximum output.

Reactions both from within and without the "ivory citadel" quickly brought a realization that eliminating price assumptions did not do away with the problem of relative valuations. Comparative advantage and interregional competition considerations necessarily meant that research workers dealing with the problem of a particular producing area had to have some relative values to use with their physical input-output data before they could get very far in comparing the results of different combintaions of farm resources. For example, a representative Corn Belt area might be producing corn, hogs, milk and soybeans. These are all essential foods, but what proportional combination in this particular area represents the maximum contribution to the total national production? There is no escape from the conclusion that relative values for different foods must be assigned if useful answers are to be obtained.

Recognizing that local necessity would lead to the early invention of relative values based on different assumptions unless a uniform approach was suggested, an attempt was made in a supplementary statement on "Methods of Arriving at Local Area Adjustments to

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

[1] Nationwide study carried on in 1943 by the United States Department of Agriculture in cooperation with the Land-Grant Colleges.

Attain Maximum National Production,"[2] to set out some of the general principles involved and to suggest some overall marginal food values as general guides. This statement contained one table showing estimates of food requirements by food groups in 1944 and 1945 expressed as percentages of expected 1943 supplies. A second table listed the major farm commodities and gave two columns of figures, one for average food values per unit of farm product and one for marginal food values. The food values were expressed as nutritive units, a nutritive unit in the case of average food values being the quantity of food which would, on the average, supply the daily allowances of 10 food nutrients as recommended by the National Research Council. In other words, equal weights were placed on the individual nutrients in the proportions recommended by this dietary standard. For example, a pound of milk consumed in whole form supplies 11 percent of the daily recommended allowance for calories, 24 percent for protein, 58 percent for calcium, and so forth, for the other nutrients. On the average, it supplies approximately 20 percent of the recommended allowances for all the essential nutrients. Therefore, approximately 5 pounds of milk used in whole form are required to equal one nutritive unit.

If maximum production of a balanced food supply were desired regardless of the form in which the nutrients were supplied, these average values could be used directly as a guide in deciding how resources should be used. But for reasons that will be explained in detail, there are definite limits beyond which it is not possible and perhaps not desirable to change current consumption habits. The relative values established for individual foods should reflect consumers' preferences as well as nutrient content. Furthermore, the values used as a guide to production should be marginal values that are associated with the national outputs required of each product.

The marginal food values which were shown in the second column of the table referred to above represented an adjustment to approach more nearly the relative farm values that it was estimated would be associated with the estimated maximum production of each commodity that would fit into a balanced pattern of food needs. In other words, these were equivalent to assumed relative U. S. prices. These marginal food values were admittedly provisional and subject to considerable modification as changes in

[2] A statement for limited administrative use in the maximum production capacity study dated April 13, 1943.

national food needs might develop and as the findings of local production capacity studies might indicate different comparative advantages and production responses than were assumed in arriving at the relative food values.

An examination of the final State reports on Maximum Production Capacity[3] and discussions with those working with local materials suggests that the marginal farm values were "just right" for the purpose intended in about the sense in which Lord Woolton, the British Food Minister, is said to have recently called the present British food rations "just right." He said "It is like this cigar which you have given me. If it had been any better you would have kept it. Had it been worse I should have refused it. Therefore, it is just right." The marginal food values have helped to bridge a serious gap in the immediate effort but there is much room for improvement. The lessons learned in the 1943 experience will serve as a foundation for further progress.

I. Food Needs or Requirements

Any analysis of the desirable use of food production resources obviously should begin with an examination of food needs. Estimates of food needs or requirements in wartime are likely to be colored by nutritional considerations more than in peacetime. There is universal agreement that necessary civilian food restrictions should, so far as possible, be limited to the nutritionally less essential items of the national diet. Military and lend-lease food requirements are heavily weighted with nutritional elements. Fighting men must be adequately fed and shipping space must be used to the utmost nutritional advantage.

But in spite of these definite tendencies, the estimation of wartime food needs is far from being an exclusively nutritional problem. Customary food habits still have full sway in many areas. Many intangibles related to the general wartime psychology must be weighed. Does coffee, for example, have any nutritional value? Yet, observe what a lift in public morale is engendered by the announcement that coffee rationing is over. No nutritionist can be found who will say that restrictions on meat consumption are harmful so long as adequate supplies of milk and other protein foods are available. Yet, some of the most difficult rationing problems are found

[3] Agriculture's Maximum Wartime Production Capacity (Statistical Summary) U.S.D.A., Sept. 1943 and separate report for each of the 48 States.

with meats. Too many individual consumers agree with the thought expressed in a recent advertisement for the cattle industry entitled "The Black Truth about the Black Market." It read: "Beef has helped make the American people great. But God spare the day when our standard of living or system of production is such that we will serve our children and ourselves synthetic fillets mignon and T-bones made of soybeans or yeast."

Comparisons of the nutritional values of butter and margarine have even resulted in the setting up of at least one University "Court of Inquisition" to obtain retractions and to pass on future publications for evidences of heresy.

Some of the problems in estimating food requirements can be illustrated by Table 1, below, which shows estimates of total food requirements for the United States for 1944 and 1945 as percentages of 1943 supplies. The two columns in this table represent two different sets of estimates made at two different times on the basis of slightly different assumptions. The estimates in the first column were prepared in May 1943 and were used in the framework of assumptions for the maximum production capacity study. Those in the second column were prepared in August on the basis of requirements used by the national production goal committees. Between May and August, some changes in the basic estimates for military lend-lease and foreign relief purposes occurred. Furthermore, the

TABLE 1. TOTAL FOOD REQUIREMENTS OF THE UNITED STATES CIVILIAN POPULATION; AND REQUIREMENTS OF THE MILITARY SERVICES AND OTHER NATIONS FROM U. S. SOURCES IN 1944 AND 1945 AS A PERCENTAGE OF 1943 PROSPECTIVE SUPPLIES

Food Groups	Percentage of 1943	
	May estimate	August estimate
	Per cent	*Per cent*
Dairy products[a]	120–125	115–120
Irish potatoes and sweet potatoes	130–140	115–125
Dry beans, peas, nuts, and soybean products	175–200	130–150
Tomatoes and citrus fruit	100–110	105–115
Leafy, green, and yellow vegetables	140–150	130–140
Other vegetables and fruits	100–110	120–125
Eggs	100	100–105
Meat and poultry	90–100	100–105
Flour and cereals	110–120	110–115
Fats and oils (including butter)	100	100–105
Sugar	60– 65	100

[a] The percentage is based on utilization of non-fat solids in milk.

estimates of probable 1943 supplies were modified. But the major changes were caused by a difference in the approach used in arriving at U. S. civilian needs which make up about three-fourths of the total.

The May estimates were made on the basis of certain civilian diet plans which were adequate nutritionally, but which involved rather significant shifts toward direct food crops and toward the use of whole milk products. The August estimates involved smaller shifts of this character and were also probably influenced by more conservative views of production and distribution possibilities. Take the case of sugar. The first estimate said 60–65 percent, which would be sufficient nutritionally. The later estimate is 100 percent which assumes a continuation of the present level of rationing. The requirements for food crops generally are lower in the later estimates because smaller changes away from customary food habits were deemed feasible in view of the total food picture.

The food requirements shown here would provide a civilian diet containing minimum quantities of the essential nutrients, the military needs, and the most urgent export needs. The requirements estimated in May include enough food to supply a reasonably balanced diet for approximately 40 million additional people. Larger quantities of food might be desirable for export purposes if they could be produced. But if more food is to be made available, further adjustment towards the low-cost food sources would be necessary. In view of the difficulties of changing consumption habits and the present production pattern, the objective—enough food for 40 million additional people—appears to be a desirable one.

It must be recognized, of course, that there is no one set of rigid requirements from the strictly dietary point of view. Considerable substitution is possible even between the broad food groups shown in Table 1. From the value point of view, however, there is, at least theoretically, a single set of requirements which while satisfying the minimum nutritional needs, will provide the various foods in such quantities that the marginal units of output will be equal in value. This single "ideal" set of requiremets will also represent the desired pattern of production, since requirements and production will necessarily be in balance when the marginal outputs are equivalent in value. The estimates in Table 1 thus represent two successive approximations to a balanced consumption—production pattern

with major emphasis on requirement considerations. The indicated shifts from the 1943 pattern were assumed to be possible of attainment, both on the consumption and production side.

II. Measuring National Food Putput Against Food Needs

Neither maximum food production nor total food requirements can be determined entirely independently of the other. The food habits of different peoples have become adjusted to the food production possibilities of their respective lands and even under the stress and strain of war these habits are difficult to change. It has been estimated, for example, that the present annual production of food nutrients (in a balanced nutritional pattern) in the United States could be more than doubled if customary food habits could be largely disregarded and production shifts made toward the farm products which yield the most nutrients per unit of resources. This may be compared with an estimated increase of perhaps 20 or 25 percent in nutrient production that might be considered a reasonable possibility if every effort is made to move toward the pattern of food needs which has been assumed in connection with production capacity studies.

A brief review of several possible methods or indexes of measuring the physical volume of food production will perhaps be of assistance at this point. In general, there are four main types of indexes distinguished by different methods of weighting or "valuing" the constituent products. Those in which the weights are:

(1) Market prices or values in some base period;
(2) Inputs of resources, as labor;
(3) Nutritional or dietary values; and
(4) Marginal food values

The first method of weighting is that used in the published index of the Bureau of Agricultural Economies of the physical volume of food production. Although good in normal times, it does not reflect the wartime needs and has limited value for our present purpose. The second method has special uses but is inappropriate for measuring output since it is based on inputs.

The third method, weighting by nutritional values, has a number of variants. The National Research Council recommendations for the individual nutrients can be given equal or variable weights and the values obtained for the nutrients in each product added together to determine the nutrient value. Or the weights can be

related to the amounts of each nutrient contained in a "moderate cost" or some other standard diet plan. Adjustment in weighting can be made, if desired, to allow for the relative scarcity of the nutrients. The nutritional method of weighting may thus recognize more or less of the "food habit" element, depending upon the extent to which this is allowed to show up in the recommended diets which may form part of the basis for the weighting system.

The fourth method, that of using marginal food values, recognizes all of the nutritional considerations, consumer preferences and other elements that enter into the building up of the total food need or requirement picture and attempts to assign farm values per unit (like prices) which may be considered to be associated with a balanced national pattern of consumption and production. Attention is focused on the marginal changes in consumption and production necessary to obtain food requirements. The marginal values established apply for specified national outputs of the individual products. The national average values then may be adjusted for differences between national average and local area conditions for use in local area studies. This is the method that appears most useful to us.

Several steps are involved in the process of building up approximate national marginal values. These may be listed as follows:

1. First the general direction to be taken by consumption and production adjustments needs to be reviewed in terms of specific commodities. With increasing food requirements it obviously is necessary to concentrate on the products that return a relatively high output of essential food nutrients per unit of resources as opposed to those that have a relatively low output. How far it is necessary to go in this direction depends upon the total number of people that are to be provided with complete or partial diets from our food production resources.
2. On the consumption side, consideration must be given to the possibilities of substitution between products from the standpoint of both nutrient content and consumer preferences. If food output is to be substantially expanded, consumption of certain direct food crops and milk for use in whole form must be increased while certain other crop and livestock products must be reduced. But food requirements measured in terms of individual nutrients can be met with several different combinations of products, and economic considerations must finally decide in what form the requirements should be supplied. Therefore, it is necessary to know what subjective values consumers place on varying quantities of the individual products. For example in 1943 the per capita civilian consumption of butter is expected to

be about 80 percent of 1942 while meat is about 90 percent. If the same resources can produce either one pound of butter or three pounds of meat, would consumers prefer to have a little more butter at the cost of a little less meat? Of course, complete information about the substitution ratios (indifference curves) of all products for varying levels of consumption is not available, but we need to give attention to those that are significant from the standpoint of the probable adjustments.

3. On the production side, consideration needs to be given to the possibilities of shifting resources between competing enterprises and the changing physical input-output relationships that occur as national output of individual products is increased or reduced. This cannot be done very adequately at the national level without first knowing the physical relationships in local producing areas. However, historical and other available information may be brought together to approximate the alternative production opportunities.
4. Finally, taking into account the preceding consumption and production possibilities in terms of a balanced national pattern, estimates of relative farm values can be made for individual products. These farm values (like U. S. farm prices) would be the first approximation of the marginal values associated with the marginal unitsof consumption and production, at this point in the analysis on a national basis. The relative values arrived at would, of course, be applicable only for specific levels of output for the individual products. For example, they would be marginal values that might be associated with the outputs indicated in Table 1 showing food needs.

This procedure is illustrated by the data shown in Table 2. Average and marginal food values are given for a few selected products. The marginal food values also are expressed as relative prices. The average values assume that the individual nutrients have equal value in the proportions recommended by the National Research Council, while the marginal values were estimated by the method described above. These marginal values are illustrative of the values that may be associated with marginal changes in the national output necessary to supply food requirements as shown in Table 1. Although reference has been made only to food products, the same procedure may be followed in estimating marginal values for the non-food products.

The marginal values established for individual products by this method, when localized, provide a basis for measuring production capacity by producing areas in uniform terms which permit national summarization. If the marginal values are approximately correct, the production pattern that results will indicate how resources in each producing area should be used in order to make a

maximum contribution to food needs. However, after comparison of this pattern of production with food needs, it may be decided that a slightly different pattern would result in a more complete supply of food needs. This will indicate that the approximate values established at the national level before detailed information about production possibilities in local areas was available, were not exactly appropriate. It will follow that slightly revised values will provide a more adequate guide in deciding how resources in local areas should be used.

TABLE 2. ESTIMATED NATIONAL AVERAGE AND MARGINAL FOOD VALUES OF SELECTED FARM PRODUCTS

Food product	Unit	Food values		Marginal food values expressed as relative prices
		Average	Marginal	
		N.U.	*N.U.*	*Dollars*
Milk, whole	Cwt.	19.6	20.0	4.00
Eggs	Doz.	.7	1.5	.30
Hogs	Cwt.	65.2	60.0	12.00
Dry edible beans	Cwt.	85.2	40.0	8.00
Soybeans	Bu.	15.0	10.0	2.00
Peanuts	Cwt.	27.0	35.0	7.00
Potatoes	Bu.	9.3	10.0	2.00
Cabbage	Cwt.	25.6	5.0	1.00

III. Measuring Maximum Contributions of Particular Producing Areas

National food production must match and balance with national food requirements. No so for the individual producing area, which forms but a small part of the total. Although specialization in certain products is characteristic of most areas, the national need for each product usually is supplied most efficiently when production is divided among areas. Because of interarea considerations, the answers cannot be fully determined within the area. In addition to local production possibilities, similar information is needed for all competing areas and where several products are involved complete information on each of them is required.

If reasonably good national marginal food values can be devised, the problem can be considerably simplified because it becomes possible to develop local farm values. Such local values can take into account differences in value caused by location in about the same way that local areas prices differ from national average prices.

Along with the general change in food production and requirements, the geographic pattern of production and requirements also will change. Therefore price differences in the past may not reflect adequately the regional pattern of values that should be established in connection with the new pattern of production.

Once local values are set up, they may (like prices) be used to compare different combinations of local area output to see which represents the greatest contribution to total output. Such values also open the way to analysis similar to the usual methods of budgeting representative farms to determine the most profitable combination. The existing conditions with respect to prices of cost factors may be used in such an analysis provided they are adjusted to comparable levels. In these circumstances, the most profitable combination would come close to representing the farming system that would maximize food output. Figured in terms of actual market prices, some other combination might be more remunerative to the farmer, and the inducement to shift toward the farming system that would make the maximum contribution to total production might have to be supplied from extra-market sources.

In using any set of relative marginal values, it must always be remembered that the whole system is provisional, based on initial estimates of the probable production responses for the nation as a whole, associated with such values. The area analyses in which these provisional values are used may later show that different responses will result, and hence, a new set of relative values may have to be finally substituted for the first provisional set. Since life is short and time limited, we cannot forever be changing the assumptions involved in a given year's work. Therefore, expedients must be devised which will make possible later adjustments in conclusions with a minimum of effort. One of these expedients is to use more than one value assumption for some of the leading products in a given area. For example, suppose that certain values are assigned to corn and soybeans. After working out the most economic combinations on this basis, then soybeans might be valued 25 percent higher and lower relative to corn and the most productive combination determined for each of these relative valuations. Such information for a number of representative soybean areas would indicate the areas in which expansion or contraction should take place if the need for soybeans rose or fell.

IV. Localizing Data on Outputs of Food Nutrients per Unit of Farm Resources

Data on national average outputs of food nutrients per unit of resources have proved extremely useful guides in connection with many policy decisions.[4]

Much of the available information, however, is limited in application because it is average rather than marginal and because it is not sufficiently localized. There are special difficulties in this field because of the incomplete nature of much of the available data on nutrient content of foods grown in different places and under different conditions. Most rapid progress will require close cooperation between State and National workers and between economists and nutritionists. One of the next steps might well be to prepare local average data of the type shown in "Using Resources to Meet Food Needs" in a number of States. The data on nutrient contents should probably be developed jointly by federal and state workers and some uniformity in procedure would be desirable.

With locally applicable data on average and marginal yields of calories, protein, riboflavin, etc., per acre of land, per hour of labor and the like, a good many useful answers may be obtained that will go far in pointing the way toward maximum production. There are enough instances of competing feed and food crops in the same farming systems, to make it worthwhile to carry the physical comparisons as far as possible. For example, corn, oats, barley and wheat have long been compared on the basis of the output of feed units per acre and per hour of labor. Dry beans, peas, edible soybeans, and edible peanuts are sources of similar complexes of nutrients and two or more may occur together in some farming systems. More limited comparisons may have value when there is a particular shortage of some nutrient in prospect.

The locally applicable data on output and inputs of resources suggested above would be related to the current production practices. This should not cause us to overlook the need for reexamining current techniques in the light of improved practices that can be profitably introduced. Such improved practices may lead to changes in outputs per unit of resources with sharply differential effects as between local producing areas. For example, hybrid corn,

[4] R. P. Christensen, Using Resources to Meet Food Needs. BAE. mimeographed May 1943.

new varieties of soybeans, changes in fertilizer practice and the like.

V. War and Postwar Needs

It is significant that the nutritive value of the U. S. civilian diet has improved during the war despite reductions in consumption of certain foods. Furthermore, the total food supply now is better distributed between population groups. Although there is much room for further progress, the record shows clearly that it is possible to improve nutrition in wartime under conditions of food shortage if resources are directed to those products that make the most efficient use of resources in producing food nutrients. Of course, this means that consumer demand for certain products can not be fully satisfied. But a healthy population certainly must be considered more important than complete satisfaction of consumer demand.

Much of our present discussion of food needs necessarily turns around the war situation. But the end of the war will not mark the end of the interest in the subject nor of the application of the type of analysis considered here. Food needs in the immediate reconstruction period may be even greater than during the war. As the period of emergency passes and the food controls are gradually relaxed, civilian consumer preferences may again find full expression. Export requirements will be modified greatly, the extent depending upon the character of the final international settlement.

Forecasting the exact pattern of food requirements for very far ahead is risky business at best. But we can be reasonably sure that, when the Nation settles down for the long peacetime pull, there will be a deep and continuing interest in adequate nutrition for all classes of the population. No agricultural policy which ignores nutrition can hope to make much progress from now on, no matter who may be directing the game. It is perfectly safe, therefore, to predict that information on the outputs of food nutrients per unit of farm resources will have even greater usefulness in peacetime than now.

Conclusion

Maximum contributions to food needs must be measured against a background of a pattern of national food requirements which has already been balanced to some extent against production possibilities and against both strictly nutritional needs and customary food

habits. No method of measuring total food production can avoid assigning weights (which are really economic values) to the different and unlike foods that make up the total picture. There are various systems of weighting but the one best adapted for measuring production against the pattern of needs which it is designed to reach is one which uses the estimated marginal food values associated with the assumed national pattern of consumption and production. These are similar to farm prices and can be so expressed if desired.

The pattern of national average values for farm products so established leads logically to a correlated system of local farm values which can be used for calculating the local contributions of farm resources that will result in the maximum production.

Physical data on outputs of food nutrients per unit of resources need to be developed for local areas. Such data are useful as guides in many policy decisions and will be increasingly useful in the post-war period.

DISCUSSION BY C. A. BONNEN

Texas A. & M. College

The procedure outlined for "Measuring Maximum Contribution to Food Needs" is both ingenuous and thought provoking. Those of us who were involved in the 1943 study of wartime production capacity approve the general purpose of this procedure. I am sure, however, that most of us do not understand the method followed in the computation of these so-called marginal food values. The usefulness of these values in their local application is greatly impaired by this lack of understanding. Neither in this paper, nor in previous publications, have the authors explained the manner in which the numerous qualitative factors which they insist must be considered were treated. The statements made are as vague as an old fashioned recipe. Dealing in broad outline is permissible and useful up to a certain point but eventually the details must be understood if the procedure is to serve the purpose for which it apparently was intended.

It would help everyone concerned including perhaps the authors, if they would select a certain commodity and show each step involved in arriving at its marginal food value. Perhaps it would be necessary to use more than one commodity in order to bring into the illustration most of the important considerations.

Our experience this year leads us to wonder if the authors are not overly optimistic as to the usefulness of their plan. Aside from indicating the general direction of desirable change in the production pattern for a few areas little use could be made of it. In many cases purely physical considerations overshadow the economic and minimize the need for such a measure. This is well illustrated in the western part of Texas where a limited and variable rainfall makes farming a rather speculative and opportunistic business. In

the High Plains Wheat Area, for example, wheat and grain sorghums are the only real competitors for the use of cropland. Approximately two-thirds of the state's wheat crop is produced in that area.

Nutritive values may favor wheat production over grain sorghums, or vice versa, but the moisture supply will determine the level of production and its distribution will be the deciding factor as to whether maximum production of food would result from the growing of greater amounts of wheat or of grain sorghums. No intelligent farmer will pass a favorable planting opportunity in that area. If a favorable moisture supply is available in the fall every acre which is free of summer growing crops should be planted to wheat since a similar opportunity to establish a crop may not present itself in the late spring when sorghums are normally planted. Again the opposite situation might prevail. In which case grain sorghums would be planted to the maximum. Now, it so happens that grain sorghums may follow wheat in the sequence of crops but it is next to impossible to establish a stand of wheat on land from which grain sorghums are harvested the same fall. If at a particular time, a large portion of the land is planted to grain sorghums, this automatically limits the amount of wheat which can be seeded for harvest the following year. To return this land to wheat, it must be planted to spring-seeded small grains, such as oats and barley, which are not very well adapted to the area or left fallow until fall when it may be seeded if moisture conditions permit.

This is the situation confronting us in that area at this time. At the insistence of the Administration, a record breaking grain sorghum acreage was planted last spring. This was possible because wheat marketing quotas were not removed until it was too late to increase wheat. When the request for more wheat production was made, the area had the smallest amount in years of land resources on which wheat could be planted. We do not believe that maximum food production will result from calling for a particular acreage of wheat or of grain sorghum but rather from permitting the farmers of the area to take full advantage of their planting opportunities regardless of whether it results in a large acreage of one or the other.

Generally speaking, this same situation prevails in other areas in the sub-humid portion of the state where failure to take advantage of a planting opportunity may result in a complete crop failure for the year.

In the humid sections of the state differences in soil type may overshadow all other considerations. For example, in the Black Prairie, corn and oats are the principal grain crops but there is little competition between them for the use of land. Corn is produced on the deep soils in competition with cotton, while oats are grown almost exclusively on soils that are too shallow and drouthy to produce good yields of summer-growing crops. Area comparisons of marginal nutritive values mean little in such cases.

These are minor difficulties, however, as compared with the manner in which non-food crops were handled. Arbitrary values were placed on such items as cotton lint and flaxseed. When information from the field indicated that cotton could be substantially increased on the basis of these values, they were reduced by an amount presumably designed to justify a

reduction in the acreage as indicated in the statement of needs. Even with this change, however, only direct methods prevented cotton from being the number one crop in the majority of areas in Texas. Judging from the summary of production capacity figures recently published by the Department of Agriculture, other cotton producing states must have had a similar experience.

Without a satisfactory treatment of non-food crops the validity of the method will remain in question throughout the south. Drs. Mighell and Christensen make no mention of this problem in their paper.

Time does not permit further attention to this line of thought. The authors suggest that much improvement can and should be made in their plan. I believe that they should be encouraged to continue in their attempts to perfect it. Despite what I have said to the contrary, I think they have made excellent progress with a very difficult task.

Assuming that the principal defects now apparent in the procedure outlined can be overcome, we will still largely depend upon an intimate knowledge of resources and of the problems relating to the use of these resources for guidance of production programs. Dr. Case has ably demonstrated such knowledge in his most excellent paper.

DISCUSSION BY G. A. POND

University of Minnesota

The use of nutritive units as suggested by Mighell and Christensen is worthy of careful consideration and study. However, there are some significant limitations. Our basic data on the nutritive value of farm products is far from adequate. Not only does the value of a given product vary with the soil and climatic conditions under which it is grown, but also with the kind and length of storage. The calculations in their paper are based on the nutritive values in the raw foods. Most farm products are cooked before consumption and the resulting losses vary widely among different food stuffs and different methods of cooking. When whole milk is consumed as a beverage, practically no loss of nutritive value occurs, but when a potato is peeled, cut in two, and boiled, both energy and protective value losses may be considerable. There are further losses in consumption due to consumer tastes and preferences. There are many "Jack Sprats" who fail to "lick the platter clean" of fat meats, and some of the fats on the original cuts were wasted before they reached the table.

It would also be desirable to know to what extent there may be any interchange among the ten nutrients listed. Can there be any substitutions and are there, perhaps, others just as essential? Instead of producing balanced food supplies in all areas, is it not desirable to produce an excess of fats, or proteins, or minerals in an area best suited to their economical production and draw on other areas for other nutrients needed to balance the national diet? What are the possibilities of producing some of these protective elements synthetically and thus save our acres for those things that can be produced only by nature? Can we not get some of our minerals from inorganic sources rather than extract them from the soil through the

slow process of plant production? We need answers to these and many similar questions before we can proceed safely with any very extensive use of nutritive units.

Mighell and Christensen stress their "marginal nutritive units." I am afraid the average reader would have difficulty accepting these without more light on how they were determined. They appear to represent the subjective judgment of the authors. Most of us don't like to take too much on faith. I am inclined to think the budgeting approach which they suggest, but do not illustrate, would produce more valuable results. After all, we are trying to maximize food production. It isn't merely a matter of producing the most food from an acre of crop land or with an hour of labor, it is a matter of how large a total we can produce from all of our resources. We have a lot of non-tillable land that will contribute forage of no use for direct human consumption, but useful in livestock production. We also must raise some crops to maintain our soil and balance our farm organizations that are useful only for livestock feeding. The question is not primarily one of "grains versus meats" as might be inferred from some of these papers. Rather it is to determine that combination of crops and livestock that will return from both our tillable and non-tillable acres and from our available labor and machinery the maximum quantity of food and fiber of the kind and quality needed to supply our wartime demands. On a national or a regional basis, this calls for a generous use of the budgeting method.

PROBLEMS OF ACHIEVING MAXIMUM FOOD AND FIBER PRODUCTION IN THE MISSISSIPPI VALLEY*

H. C. M. Case
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THE 20 midwestern states comprising most of the Mississippi Valley and Texas normally produce three-fourths of the total harvested acreage of crops in the United States. The share of the staple crops produced in this area is even greater, representing more than four-fifths of the corn, oats and cotton, nine-tenths of the soybeans, and three-fourths of the barley, wheat, and rye, of the United States. In terms of livestock production this area has approximately seven-tenths of the milk cows and of all cattle, four-fifths of the hogs, half of the sheep, and two-thirds of the chickens produced in the United States. It is this area that produces most of our surplus agricultural products. The problems of production in this area, therefore, include the major problems of producing food to meet wartime necessities. Because of the urgency of food and fiber production, these problems must be approached from the practical standpoint of what is immediately feasible.

The problems of achieving maximum food and fiber production are so diverse as to suggest the desirability of classifying the means through which increased production might be achieved. These means might be classified according to four major groups: first, *bringing new land into use;* second, *adjusting land now in use to the production of seriously needed or more intensive crops in terms of gross production;* third, *adjusting the size and kind of livestock enterprises to meet feed and food situations;* and fourth, *improving the technique of production through the use of improved practices which will increase the production per acre, per unit of feed or per animal.*

Bringing new land into use caught the imagination of many people during and at the close of the first world war. In the more humid parts of the Midwest it requires several years to drain, clear, and improve land for maximum crop production if it is land which has not previously been cropped, and to that extent such land does not represent a quick asset for obtaining increased production. There are considerable areas in the Mississippi Delta region, however,

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

which undoubtedly can be developed as desirable cropland in the future. In the western part of the area where some 40 million additional acres of land were brought under the plow during the early 'twenties, many mistakes were made. The speaker's unfamiliarity with the regions most likely to have land which could be brought into cultivation without delay may disqualify him from making comments. Records show convincingly, however, that it was a mistake to have broken up most of the land brought under cultivation at the close of World War I. A well-informed farm leader in one of the states making a major contribution to this increased cropland some 20 years ago recently made the statement that "the only ones wanting to break up large acreages of land in our state which are in grass are the politicians and landlords living outside of the state. We can produce the largest amount of feed in our state by leaving as much land in grass as is now in grass." The experiences of 20 years ago would lead one to believe that this statement closely approximates the truth.

Adjusting farmland now in use to the production of seriously needed or more intensive crops affords a fertile field for theoretical and statistical analysis. One needs only to analyze the feed and food nutrients produced per acre from different crops to realize that adjustments in the use of land may change tremendously both the kind and volume of production which may be realized. On the other hand, any contemplated major adjustment needs to be analyzed with reference to the dietary habits of the nation.

As absorbing as comparisons of the relative food value of different crops become when compared on either an acre basis or on the basis of the production per hour of labor, many practical considerations take precedence. Major adjustments in crop acreages relate primarily to less than twenty staple grain, fiber, forage, and vegetable crops. These adjustments need to be analyzed with reference to soil adaptation, topography, climate, soil conservation, available fertilizers, feed requirements, insurance against crop failure, control of insects and diseases, optimum returns from the rotation, available labor and equipment, and other production facilities as well as from the viewpoint of human needs. Such considerations dictate that several crops should be grown on most farms.

Many farmers believe and have strong support for their beliefs that some of the necessary factors which contribute towards maintaining a workable farm unit have been neglected on the part of

national planners. In approaching this problem, it may be said that too many people have the idea that agriculture does not change much from one year to another. This is a false assumption and faith in historic bases needs adjustment. Agriculture has changed tremendously during the past 30 years. New crops have come into our cropping systems; old ones have been displaced and the proportions of crops grown have changed materially in certain areas. While such changes normally would have occurred over a long period of time, the Agricultural Adjustment Administration program and the war have tended to accentuate them.

Some of these major crop changes probably will be quite permanent. Soybeans have become one of the more important crops in the Mississippi Valley. In Illinois their acreage has increased from 720,000 acres in 1930 to more than 4 million acres in 1943. A primary reason for this rapid increase in acreage was the need for vegetable oils to supplement cottonseed oil, the production of which has been restricted in recent years. New uses gave soybeans another "boost" and the shortage of vegetable oil due to the war brought them to paramount importance. Soybean production was well established some five or six years ago in central Illinois and naturally, as the demand for soybeans increased, this is the area in which soybean acreage has expanded most rapidly.

Maladjustments in the crop and feed picture arose in Illinois, for example, when the federal government asked for increased soybean and corn production. As the growing of soybeans developed, the Agricultural Adjustment Administration did not reallocate the corn acreage to prevent the overexpansion of the combined acreage of corn and soybeans in the central area. As a consequence, some 15 to 20 counties are now growing a much larger proportion of the total crop land in tilled crops than can be long continued without permanent damage to the soil and a reduced volume of food stuffs. In several counties, corn and soybeans now make up over 70 percent of the crop land area. As evidence of the existing situation in east-central Illinois the percent of crop land in tilled crops in that area has increased 20 percent in the past 10 years, while in other parts of the state, it has increased less than 10 percent in the same period of time. The urge to grow more beans received the greatest response in those areas which were already accustomed to growing the crop. On the other hand, the increase in the percentage of corn grown in different parts of the state did not fit into the feed needs

in the respective areas. As a consequence, in those areas which most readily took up the growing of soybeans some farmers did not plant their allotment of corn in 1942, while in other parts of the state many overplanted their corn allotment by 10 to 20 percent.

The drain upon the fertility of the land resulting from growing the large acreages of corn and soybeans has not yet been adequately dealt with nor has the import of the problem been fully recognized in recent federal crop programs. Danger of irreparable damage to the soil needs attention even during the war period. In shaping land use for maximum production for even the next two, three, or four years, we cannot rely upon historical information alone in guiding production plans, especially in those areas where a new crop is coming into prominence.

It may be well recognized that, while corn and soybeans compete very closely in their demands upon the soil, and labor, power, and equipment requirements, the two crops do utilize the factors of production somewhat more economically than if all the land were planted to a single crop. This, along with the price relationship, has been a cause for the very heavy increase in soybean production, especially in those areas following primarily a grain type of production where most farmers do not feed nearly all their corn to livestock. In such an area the drain on the fertility of the land may be much heavier than it is in regions such as northwestern Illinois where, on an average, as much corn is fed on the farm as is produced on it. There corn does not make up so large a share of the crop land as in certain other areas of the corn belt. Therefore, less serious damage to the soil will occur in a short space of time than in cash-grain areas where most of the crops are sold. It would appear further, judging from average yields and physical soil conditions, that certain livestock areas can better withstand heavier cropping during the war period than can some of the areas now growing corn on a larger proportion of the land.

To plan crop production on a scientific basis, the limitations of the soil and the combinations of crops which bring about irreparable damage to the soil should be recognized and increased production should be limited to the acreage which, under proper management techniques, will bring about the largest return, first for the war period and secondly on a long time basis. Certainly, in the wartime emergency the fertility of the soil will be drawn upon heavily, but we can ill afford to bring about irreparable soil damage. This il-

lustration applying specifically to Illinois may have its counterpart for other crops in other areas of the Mississippi Valley.

Another aspect of adjusting land to its best use is the recognition of changes which are taking place in the yields of different staple crops. In recent years, no other crops have approached the increases in total production that have occurred in corn and soybeans: in corn, due to the introduction of hybrid corn, and in soybeans to the introduction of improved varieties. Changes are taking place in other crops. For example, some of the newer varieties of oats are now giving an increase in yield somewhat comparable to the increases realized in corn and soybeans in recent years. These changes in the relative yields of crops need to be recognized in bringing about adjustments in acreages. The larger returns possible from corn and soybeans have induced many farmers to reduce their acreage of oats and wheat that may be used as nurse corps to such a low level that they are not establishing the acreage of hay and pasture crops needed for current livestock production. Because of the heavy winterkilling of hay in Illinois this last winter, farmers expect to harvest 600 thousand acres of soybeans to meet their hay needs of the coming winter. However, the cutting of soybean hay is going to be held to the bare requirements of livestock production because of the relative yield and value of hay and beans per acre, and much livestock will not receive the amount of feed required for optimum returns. Land use, therefore, as emphasized in the maximum crop production study of 1944 and subsequent years must take into account many conditions.

The third approach to securing increased production through adjusting the size and kind of livestock enterprises to meet feed and food situations raises a number of complicated questions. Many farmers, especially throughout the corn-belt area, never have used their crop production to its fullest advantage for livestock production. On thousands of midwestern farms, enough roughage goes to waste annually to furnish most of the feed for a small herd of beef-cattle or sheep. Adjustments which took place in farm operation during World War I may in many respects indicate changes or adjustments which should be and undoubtedly are being brought about at the present time. The narrow margin between the prices of feeder and slaughter cattle and sheep does not encourage the corn-belt feeder to feed the amount of grain to beef animals and sheep which he has fed under normal conditions. As long as ceiling

prices are imposed, the trend toward less highly finished animals will continue.

A major livestock problem in wartime is that of preventing farmers from making too violent changes in total production by going to the extreme either in the excessive expansion or in the elimination of an enterprise rather than properly balancing the relative sizes of enterprises. Better guidance in appraising opportunities and resources is essential to maximum production. Again better price administration would do much to stabilize production. In fact, the problems of bringing about desirable adjustments in the relative sizes of livestock enterprises are largely the problems of price relationships if prices reflect supply and demand conditions.

What has been said about problems of achieving maximum food and fiber production concerns plans which are formulated in preparation for actual production. Plans may be drawn with normal production conditions in mind. However, seasonal conditions may materially alter the gross production of agriculture.

In the first three approaches to maximum production we have not touched upon what may be the most fruitful means of getting increased production: that of *improving the technique of production through the use of improved practices which increase the yield per acre, per unit of feed or per animal.* It has been intimated that there are limitations upon the extent to which crops can be substituted for each other because of their effect upon the rotation of crops or the combinations which are needed to provide a proper balance in the use of the soil, labor, power, equipment, and the control of insects and diseases, as well as to bring about the production of those feeds needed to produce the livestock products which are deemed to be important in accomplishing national objectives. After determining the land to be used for specific crop production and the adjustment of livestock to meet these objectives, the plans must be put into operation. Probably the execution of these plans—the practices used in production—afford the greatest possibility for increasing production. Yet farm management workers as a group have failed to give enough attention to individual farm practices which will pay large dividends. Perhaps in our academic approach in the discussion of the law of proportioning the factors of production and the law of increasing and diminishing returns, we have dealt too much in the abstract rather than in the application of such laws. Perhaps we have over-emphasized the extent to which a farmer can

increase total yields. We might better apply the analysis of increasing and diminishing returns, not to the crop in total, but to each of the seed selection, seed bed preparation, application of fertilizer, cultivation, and other practices that enter into the production of that crop.

The approach in terms of individual farm practices needs emphasis. More attention needs to be given to the fact that the margin between good and poor farms in the same community is continually getting wider, even though originally the soil was of the same quality and the farmers have access to the same markets for their products and are subject to the same weather conditions. While a portion of the difference may be due to the way the land has been handled over the last half century or longer, perhaps a greater portion of this difference is due to individual practices followed on the respective farms. This difference is in a sense cumulative—greater capital gained through larger earnings enables good farmers to take advantage of new developments. Many farmers are too apt to think that after they have decided upon the crops and livestock to be raised there is little else they can do but to proceed with their usual production plans. They do not realize the extent to which the practices on their own farms may differ from those on adjoining farms. *After having adjusted the acreages of crops and the size and kind of livestock enterprises to be grown, the farmer finds his great opportunity of increasing both crop and livestock production in the wise use of desirable farm practices.* In the same areas, general cultural practices are much the same for all farmers. Some obtain higher returns by applying these practices at the optimum time or more thoroughly than is done on the less productive farms. Other practices are already followed on the better farms, but are not yet in general use. Failure to adopt part or all of the better practices is frequently due to a lack of certain facilities on the farm as well as lack of information. Some tenants may be willing to follow improved practices but the landlord does not recognize their importance. Again, many landlords would like to adopt certain practices but they cannot sell the tenant on their worth. Also, the application of many practices in wartime crop production may depend upon securing the proper amount and kind of equipment.

The rapid expansion in the use of such soil improvement practices, as applying limestone or raw rock phosphate have brought material improvement in crop returns on many farms. However,

such improvement requires time to bring about its full effect upon production. The use of super-phosphate and other types of commercial fertilizers brings quicker returns. The use of high yielding legumes, such as alfalfa and superior soil improving legumes, such as sweet clover, have done much to increase the production of crops following their growth.

One comparatively new practice in the corn-belt which may materially increase our production is contour farming. This has special application at the present time in those areas which because of soil conditions are over-planting the acreage of intertilled crops. Soybeans, a crop which is contributing more to erosion than any other crop in the Midwest, can be grown successfully on the contour with comparatively small soil loss where it would lead to irreparable damage if planted in straight rows. Probably no other one farm practice, if generally adopted where needed, would result in so much added crop production. This is especially true from the standpoint of the cash expense involved or the facilities required to put the practice into use. On most farms all the needed equipment is available for contour farming. Studies made over the past four years in soil conservation districts in Illinois show that where part of the land on a farm was farmed on the contour and part of it in straight rows, the increase in yields of staple crops resulting from contour farming ranged from 10 to 20 percent. This gain in production was due not so much to the immediate effect upon the fertility of the land as to the conservation of moisture and the protection of the growing plant. At the same time, it has the long-time desired effect of conserving the soil itself. On other farms drainage is just as effective in increasing the production of the land even in the wartime emergency. The cost of tiling some land may be met in a single season of excessive rainfall by the saving of the crop.

A common fault of the average person is to look for something new. It is still a problem to get many farmers to do the generally accepted practices well and on time. Prompt hauling out of farm manure will often do more than any other one practice to increase the wartime production on some farms. Delay in hauling out farm manure until the succeeding crop year not only results in a year's delay in getting the benefits from the fertilizer, but also in the loss of a large part of its plant food. Pasture improvement is another practice that has been generally overlooked. The opportunity of improving the yield of our pastures is just as great as increasing

the yields of other farm crops. Sample tests indicate that yields of many permanent pastures could be doubled through the use of a pasture improvement program.

The importance of good farm practices in the handling of livestock and in their performance is even more important than in crop production. With the shortage of labor, farmers are apt to delay important jobs until they are less effective. It is just as pressing to take needed steps in livestock sanitation as it is to plant a crop in the right season. A little delay or a little slip in a program of sanitation may lead to disease and a consequently unprofitable enterprise. Also, in the rush to get farm work done, a farmer who is in the habit of mixing feed to get the right proportions of protein feeds may put off the job for a few days and feed an unbalanced ration to his hogs or poultry. As a result, production drops, and once down, animals are slow to get back to normal production or normal gains. Many farms need to appraise their feed situation carefully for with the shortage of pasture, or hay or protein feeds, it may be expedient even in this period of shortage of labor and at considerable expense to provide the necessary feed to get maximum production. For example, with the shortage of hay and pasture crops this year, some men are wisely providing silage for their dairy herd although they do not use it under normal conditions. These are little things, but it is the little things added together that account for recorded differences of 100 percent in total production on farms in the same community.

While the means of attaining maximum agricultural production have been discussed, the facilities available for maximum production need to be fully considered. In helping to maintain or increase the production per acre and per animal, it is highly essential that necessary labor, machinery, and other supplies be made available. Study of practices shows that on many farms much can be done to increase production through better planning and use of the available labor supply so as to increase the output per worker. Fortunately, farmers throughout the Mississippi Valley were, in general, well stocked with equipment when the restrictions on sale of machinery came into effect. They have gotten along recently with restricted amounts of new equipment, but the time has already arrived when, as a minimum, normal replacements of certain kinds of farm equipment must be made if production is to be maintained. Also, while adequate labor may be available for most production

processes on the typical farm, there will be shortages occurring in specialized lines of production, such as fruit and vegetable production and processing. The experiences of the current year may help materially in meeting this problem another year, but too large a proportion of the skilled labor was removed from some agricultural industries to allow them to function satisfactorily. A certain amount of skilled labor is essential in supervising inexperienced workers.

Aside from specialized production, a study of labor conditions on farms of different sizes discloses an unfortunate lack of balance in the distribution of labor now available. An analysis of farms on which records were kept shows that while the small farms produced the largest returns per acre that the production per worker was far greater on the larger farms. Further, the analysis on the farm plan work sheets, of the Agricultural Adjustment Administration and farm plans for 2,881 farms in Illinois analyzed with respect to their intended changes in production for 1943 discloses that farms of all sizes in Illinois have an opportunity to increase the production of crops and livestock.

The estimate of their ability to increase production was conservative on the part of operators of large farms because they had experienced a short supply of labor. Operators of small farms were overly optimistic because of their desire to provide work for members of their families and the expectation at that time of being able to purchase feed as needed. Briefly, the study shows that the production per acre is greater on small farms and the increase expected in production was greater per acre. This, however, would require considerable amounts of new buildings and equipment. On the larger farms the expected increase in production per worker greatly exceeded that of the small farms and required less additional equipment. The amount of labor available per hundred acres of farmland was nearly four times as great on farms below 80 acres in size as on farms of more than 240 acres in size.

For the best economic use of labor, improvements and equipment available, labor should be more evenly distributed to all farms either on a part time or a full time basis. The further study of the intentions of these farmers leads to the conclusion that small farms should emphasize increased production of intensive truck crops for direct sale or processing, poultry, and dairying while increased production of staple crops and meat animals should take place in general on the larger farms.

While the administration of prices was designed primarily to control inflation, it is a serious mistake not to regard price administration as a legitimate facility for adjusting agricultural production to the needs of the nation. Up to the present time, price administration has fallen far short of giving farmers the assurance they need to carry out their production processes. A farmer cannot immediately increase and decrease his size of operations. It requires from several months, even to years, to bring a farm enterprise into full production and place the final product on the market. Price administration should keep faith with the farmer by not changing price regulations in such a way as to make him uncertain of the price relationship which will exist when his production reaches the market. As an illustration, the setting of a floor under the price of hogs at $13.75 was a serious detriment to increased dairy production when costs were rising and dairy prices were relatively low. Our better farmers have been quite adept under normal conditions to interpreting livestock price relationships when final products reach the market. However, they have lost faith in their ability to interpret conditions far in advance when prices are dependent upon federal administration. While floors and ceilings to prices of agricultural products may be essential to handling the food problems of the nation, it is likewise necessary that they be adjusted in such ways as to serve as a guide rather than a detriment to desirable adjustments in agricultural production.

An analysis of the plans for increased production on individual farms leads one to the conclusion that maximum production calls for a careful appraisal of resources on each individual farm and a thorough job of farm planning for individual farms. One has only to call attention to the fact that some farms are producing twice the feed nutrients per acre as other farms in the same areas to realize how far one may go in the selection of the proportions of different crops and the adoption of good practices to accomplish increased production. While much of this difference in production may be the result of several years' operation, much may be accomplished by immediately adopting those practices which give quick results. Likewise, differing abilities of operators as well as differences in available labor, improvements, and equipment bring about various possibilities in the expansion of livestock enterprises to increase total production.

Unfortunately, perhaps, in our Agricultural Extension Service, farmers have been accustomed to selecting, cafeteria style, the ex-

tension projects which they will adopt on their own farms. This hit or miss approach to helping a man improve the organization and operation of his farm has accomplished much good; but just as the extension specialists are highly specialized in their respective lines, it has helped farmers to become specialists in certain lines without necessarily helping them to develop well-balanced farm units. The highly specialized corn breeder produces better corn, the highly specialized hog raiser produces better hogs while either may have serious weaknesses in the organization of his farm at other points. Perhaps it is not out of keeping with the subject of this discussion to say that our extension specialists, fine as they are, are like a group of highly specialized cooks in a large cafeteria, with each one specializing in some particular kind of food such as vegetables, fruit, meat, or pastry. The quantities of the products of their individual skills which their patrons take from the counter are the measure of their success. They may have a certain amount of apathy toward the recipes developed by other cooks in the same organization. At this time when food problems are so acute, we may be leaving the farmer largely to select from the counter what his appetite dictates rather than helping him to secure a balanced meal, best designed for his own good and for the conservation of food supplies. Farm records secured from the farms of the occasional man who has developed a well-balanced farm unit provide eloquent evidence of the increase to be secured through well-balanced farming. Perhaps the devotees of individual farm planning, not as worked out under Agricultural Administration Act programs but the more complete farm planning that involves the careful appraisal of all resources of land, available capital, labor, equipment, and managerial ability, were simply born too soon. As farms of the same soil type having access to the same markets, operating under the same weather conditions, show wider and wider differences in productivity and net earnings, it is to be expected that the extension specialist of the future must work more and more to help devise farm plans which are adapted to all the resources available on a particular farm, recognizing that they may be very different from those available on the adjoining farm property. At best we can expect only a very superficial approach to such complete farm planning for the average farmer in the immediate future.

In conclusion, it appears that of the various means of accom-

plishing the food production objectives—through breaking up more land, through adjustment in acreages of crops, through adjustment in kinds and sizes of livestock enterprises, and through increased use of better practices—that the general use of improved practices is apt to need greatest consideration because of its possibilities. With the scarcity of labor and other production facilities, heroic effects will be needed to maintain the production per acre per unit of feed and per animal.

DISCUSSION BY R. J. SAVILLE

Farm Security Administration

Professor Case's paper covers quite adequately significant problems pertaining to organization of agricultural resources, possibilities through management practices, adequacy of requirements for production, limitations of Government farm programs, and improvements in planning individual farm units. Some segments of these are set forth as much more vital than others in reaching maximum production. These comments will try to draw a sharper distinction in their probable importance under present circumstances and the relative emphasis needed now, together with some contrasts with the last war.

A very significant factor in the importance of these problems will be the attitude of farmers concerning action along the lines Professor Case has pointed out as restricting influences. Much will turn on the frame of mind farmers hold relative to doing the job. Present expectation might well be that changes toward goals will be too slow and conservative for wartime needs, even though very remarkable adjustment results have been achieved in the past two years, particularly with oil-seed crops. But this is a fast moving war and agriculture needs to make sharp annual changes to keep pace. This is true for the adjustment in land for crops, in shifts between different uses of the land, in balancing livestock feeding between enterprises, and most noticeably in the adoption of management practices which will bring sharp gains in unit output. Since the crop year is the period of adjustment, it is expected that agriculture must get ahead of the trend when plans are made, if it is to be up with the needs by the time of harvest, in so long as the war lasts.

There are certain problems which appear more critical than others and to which greater attention should be given. We can be very sure of the relative shortages in terms of place where needed and in the timeliness when needed, for labor, protein feeds, machinery, and perhaps some other materials of production, particularly of desired qualities. It seems much less possible that unbalanced farm organization, irreparable damage to soil, disturbed livestock enterprise organizations, changing supplies for market facilities, and needed shifts in dietary habits will develop to any disturbing point as war economy problems. Goals do not call for enough total shift to bring such about. Civilian population seems ready to go much further in accepting changes if only it is made apparent that such is shared by all

people and serves a necessary wartime purpose. It is significant that the masses of our people have more to eat now than ever before. Mainly, farmers are asked to produce more of everything, except for a very few crops, with them having an opportunity to retain much of the "say so" in how they will do it, including substitutions that they can make. Shifts, in crops at least, are often not so greatly different in the way land is used, except at the point where hay and pasture crops are replaced by row crops.

The point of view expressed by Professor Case concerning the farmer's position on the needs of war, what constitutes good business, and the readjustment that will result with a sudden peacetime economy, must be modified some to include a good deal more of that intangible condition that a soldier must face when he volunteers his services for military duty, prepares himself for the job, and goes into action directed at waging a successful war. Some severe sacrifices must be made that are beyond the scope of present business costs. Farmers can't very well hold back because of past and present depletions to resources. The emphasis must go to rapid restoration. While happenings in the last war may have seemed unwise afterward, they were well intended and quite apparently necessary at the time. But it is probable that much of the trouble associated with World War I actually was a post war development rather than in the effort to reach war goals needed at that time. So it seems to make little difference whether it is new land clearing in the delta, plowing up pasture and meadow lands in present farming systems, digging deeper into fallow land reserves, shifting from present crop and livestock enterprise balances to different ones, using feeding rations and rates that depart from the most efficient feeding practices, when the war is over the existing conditions will appear as serious maladjustments for peacetime economy. So now, as in the past war, our first job is to get production, with as full use of conservation and restoration measures as labor and resources will permit, and devise a means of making the conversion to postwar needs when that time comes.

There should be broad agreement with Professor Case that full use of recognized conservation practices will hold such damages to a minimum but much may need to be done in order to get a wide adoption of such practices. In fact, this might well be just as much of our patriotic and economic appeal now as that of reaching acreage goals in the war effort. If this is done, then there need be no serious disaster to individual states or areas by placing an undue cropping burden on them.

The most critical problem is the labor supply. Can we stretch farm labor recources still farther in 1944 than existed in 1943? Mr. Case sets forth the small versus large farm opportunities, with emphasis mostly on the adjustments needed for larger farms. Since relative labor losses have been more severe for larger farms than for smaller ones, it seems that we had better adjust toward a labor supply that will be held in the rural areas. There is every reason to believe much more must be done about getting workers to where they can produce most, as was demonstrated in the year-round Farm Labor Program in 1943, and in getting larger farms or more land for as many families as possible that can handle more land with present labor

supply. We have machinery set up to do this job. It should be brought to bear fully and effectively on the problem before the 1944 season starts.

The approach to planning used by War Boards in 1943, when applied to all resources, is in the right direction, but needs more complete planning ahead and far greater emphasis on adequate provision for working resources. Also, we need to emphasize greatly, extension of a few simple farm practices that increase production most with little added resources, rather than to diffuse efforts along this line without getting performance. The success will depend on having all agencies dealing with farmers reach a surprisingly large number of them. But it will be necessary to get some of the requirements sufficiently accessible to farmers so that accomplishments will be assured. Telling and demonstrating will not be nearly enough. Actually having available the proper seed, fertilizers, spray materials, feed mixtures, or cover crop preparation are essential under the circumstances that exist. Probable price relationship, while highly important and needed well in advance of making final plans, is not without a close factor—getting new producers as acquainted with how to tackle a new enterprise as is possible. Prices do not mean so much to them until they have experienced receiving them.

While Professor Case has mentioned the effort at planning in 1943, this needs far more development to overcome the reluctance of farmers, many of whom have always found it desirable to change slowly, so that they will adjust quickly and fully into needed lines of production. Only as we are able to get a wider range of good planning, not only in what to plant or livestock to grow, but to look ahead and provide, through agencies at their disposal, the resources needed for their maximum production, will we be able to reach goals with resources that will probably be available for the year ahead.

DISCUSSION BY C. A. BONNEN

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I have time to comment on but one phase of this paper by Dr. Case A study of size of farm as related to the distribution of labor and land resources was also made in a selected area in Texas. The Northeast Sandy Lands were chosen because of the complicated adjustments in farming systems believed necessary for maximum production of war essential crops in that area. The results of the analysis are of interest here because of the light they throw on some of the problems involved in making these adjustments. Farm Plan work sheets and manpower inventory data were used. The farms were divided into four groups on the basis of size. The groups ranged, at 20-acre intervals, from farms having less than 20 acres of cropland to farms having 60 or more acres of cropland. Comparing these groups we find that while all farms had some unused land resources, the greater part of it was on the large farms. The large group representing 33 percent of the farms, had 65 percent of the land resources, a third of which was unused. The smallest group having, roughly, 20 percent of the farms had less than 4 percent of the total cropland of which only 10 percent was idle.

A reverse situation prevailed with respect to labor. The large farms were making rather complete use of the available labor supply and were hiring additional labor during peak periods, whereas the small farms were using only 30 to 40 percent of the available labor during peak periods and less during other periods of the year.

These differences in unused capacity are quite significant from the standpoint of allocating the production of war essential crops. A substantial portion of any increases in the production of peanuts, sweet potatoes, and tomatoes in Texas must come from this area. Tomatoes are well suited to production on small farms. They make heavy demands on labor but use relatively little land or machinery. A family can handle from 1 to 3 acres. It was estimated that of the four groups of farms, the two smaller groups having less than 25 percent of the cropland of the area had the capacity to produce 60 percent of all of the tomatoes. Only proper price administration would be necessary to obtain the maximum acreage.

Sweet potatoes demand less than half as much labor per acre as do tomatoes but use 3 to 4 times as much land for a typical commercial acreage. Sweet potatoes seem to fit the resources of the two intermediate size groups. It was estimated that these groups comprising 31 percent of the cropland of the area represent 70 percent of its capacity for sweet potato production.

In addition to careful price administration, the problems involved in attaining full production of sweet potatoes from the area largely center around curing, storing, and marketing. These services would have to be provided for the majority of new producers.

The situation is altogether different in the case of peanuts. The land resources are available and perhaps the labor but expansion has been limited because of difficulties growing out of small scale methods of production.

The average investment in machinery in the Northeast Sandy Lands is less than $150 per farm. One row and part row equipment are in general use. Of the farms studied, those growing peanuts planted to grow less than 5 acres per farm in 1943. Only 8 percent of these farms reported as much as 10 acres. These acreages represent the approximate amount of peanuts that can be handled with present methods of production.

The total investment in a peanut picker, the power unit to operate it and the baler needed to preserve the hay is about $2,500, an amount almost equal to the total value of all physical resources on an average farm. Under these conditions neither individual farmers nor groups of farmers can afford to invest in harvesting machinery. Furthermore, there are few individuals outside of the farm group with so little business judgment as to risk such a large investment in a business which promises so little.

The full capacity of the area for peanut production can be realized only by a revolutionary change in production methods. It has been estimated that production could be increased 600 percent through reorganization of about 20 percent of the farms around mechanical equipment. Each of these farms would need a tractor and tractor equipment as well as a side delivery rake to facilitate harvesting. With these available, peanuts could be grown on such a scale as to warrant the additional investment in the

necessary pickers and balers. The greater part of the changes would have to take place on the larger farms where land resources will permit efficient use of the larger machinery. It was estimated that 80 percent of the capacity of the area for peanut production is on these farms. With improved equipment on the larger farms production could also be increased on some of the smaller farms since they could contract with the larger growers to plow out and rake their peanuts.

Up to this time, price administration has been mainly depended upon to bring forth the desired amount of peanut production. Experience of the past two years indicates that little further increase may be expected from this type of program. To encourage farmers to make the drastic changes needed for increased peanut production, they must be given financial assistance in the purchase of equipment. They would need prompt and expert guidance if the changes are to be made quickly and most effectively. They would also need either assurance of continued demand for peanuts after the war or insurance against loss of investment in the equipment.

WORKING WITH FARMERS TO ACHIEVE MAXIMUM PRODUCTION*

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EACH of five differently functioning groups of agricultural and governmental agencies is vitally interested in working *with* farmers to achieve maximum production in agriculture. These five groups of agencies include governmental war agencies, research agencies, educational agencies, action agencies and pressure groups. Each of these groups considers increased agricultural production to be one of its functions and a major part of its contribution to the war effort. Would not past experience and recent confusion of responsibilities indicate that each group might make a greater contribution through a unified cooperative program to maximize production? Cooperative effort succeeds best where there is a clear definition of responsibility for each party involved. Nine steps have been outlined in a program in which the major responsibility of each group is indicated.

These suggested steps may seem theoretical, idealistic or unattainable because of the large amount of cooperation, coordination and planning required. However, it is the thesis of this paper that the degree of success in maximizing agricultural production will be determined by the amount of such cooperation, coordination and planning as is accomplished on a national, state and county level. On the other hand, some may say that each of these steps is already being carried out—and to a certain degree this is true but in a very piece-meal, quite unrelated and in some cases in a very conflicting manner.

It is the purpose of this paper to show how these agencies—with particular emphasis upon the educational groups—might organize their responsibilities in a cooperative effort to maximize production and to suggest certain approaches which would improve their effectiveness in working with farmers.

Nine Steps in a Cooperative Program of Agencies Working With Farmers to Maximize Production

I. Determine and clearly state policies and assumptions.
II. Determine food needs and production goals.

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

III. Secure general acceptance of goals by all agencies.
IV. Determine necessary price floors, price ceilings and incentive payments.
V. Conduct an educational program of an informative nature with farmers.
VI. Prepare an individual farm plan *with* each farmer.
VII. Conduct educational phase of program with farmers on principles in enterprise adjustments and on important improved farm practices.
VIII. Provide individual farmers with necessary resources.
IX. Change policies or assumptions and correct errors in application as local situations demand.

Assumptions

Having agreed upon the objective of maximizing production in agriculture and using all available resources to assist the farmer in accomplishing this end, certain assumptions must be made as a basis for any cooperative program to be developed. The following assumptions are presented as being the nearest to the actual situation relative to farmer and community attitudes on maximizing production:

1. That each farmer and his family earnestly desires to make the largest possible contribution to the war effort and will use all available resources including his management ability to the practical maximum to do so.

2. That each individual farmer and his family will be the final determinant as to the kinds and amounts of crops and livestock which will be produced on his farm next year and the practices to be followed in order to maximize his production.

3. That each farmer is basically patriotic but will maximize production most where patriotism and profit are combined. Certain farmers producing certain enterprises will place much more emphasis upon the profit motive than the same farmer with other enterprises or other farmers with different enterprises. As an example, farmers who feed beef cattle are of necessity relatively more economic minded than most other types of farmers.

4. That like all other producers farmers need assistance and are interested in suggestions as to what to produce and how to produce it in order to increase production, provided such suggestions are

within the realm of possibility with what resources they have available or can obtain.

5. That farmers want to know to whom they should look for authoritative statements relative to various problems involved in maximizing production.

6. That all the people and organizations in a rural community may be able to make a contribution to the war food production program.

Step I. Policy Determination

A few of the important policy determinations which need to be made by governmental war agencies (which include War Food Administration, Office of Price Administration, Lend-Lease, War Production Board, War Manpower Commission, Selective Service, Navy, Army, etc.) with research, educational, action and pressure group agencies acting in an advisory capacity are:

1. An estimate as to how long the war will last and a rough guess as to the immediate post-war food needs.

2. A decision as to how far our man power in various sections of agriculture must be depleted each year.

3. A decision as to how far our soil resources should be depleted in various soil areas and in different type of farming areas.

4. A decision as to how far our farm machinery and equipment can be depleted before additional allocations of steel and man power to farm machinery manufacturers is made.

5. A decision as to how far and how soon to deplete our livestock reserves, that is, cattle and sheep especially, and hogs to some extent.

6. A decision as to the relative importance of *quantity* of food versus *quality* of food for human consumption, viz., grains versus meats.

7. A decision as to relative amount of feed grains to be produced in the corn belt and wheat belt and shipped out as feed grains to other areas.

8. An estimate as to the range in the probable food needs in each of the various categories of our population; that is, men in service, civilian population in defense work, Allied armies, remaining civilian population and population of nations freed by the Allied invasion.

9. A decision as to whether all farm families are to be reached effectively and what segments of the farm population will give greatest results.

10. A clear-cut and definite assignment of responsibility to each of the various agencies.

11. A suggested procedure for local educational and research agencies which find governmental policies to be wrong in their application to a particular area.

12. A definite attempt to abide by policy decisions for a full production period which would be necessary for a particular crop or livestock enterprise. This production period should be sufficiently long to reimburse unusual costs involved in making any major changes in production.

13. Errors in decision should be expected but should be quickly admitted and explained to those affected when discovered.

The major purpose of including representatives of all groups in making important policy determinations is to develop confidence through mutual understanding of the problems involved and thus avoid later conflict arising from questioned motives and uncertainty of background.

Step II. Production Goals Determination

As a means of compromising the conflict of food needs with possible food production because of limited labor, equipment and land resources, the various agencies involved should determine production goals for the nation and for various areas of the country with the goal of maximizing needed food production. This is primarily a research agency function of the bureaus in the U.S. Department of Agriculture and the Experiment Stations of the Land Grant Colleges. In order that all other groups are kept informed of the basic assumptions relative to adjustments in acreages and numbers of livestock and expected changes in efficiency, representatives from each of the other groups should act in an advisory capacity at both state and national levels.

In the past there has been a tendency to center the determination of the production goals in the hands of the economics research groups both nationally and at the state level. There is a real need of expanding these groups to include the research workers and the educational specialists in technical production fields as a means of making the resulting estimates more practical and more acceptable. These technical specialists, together with action agency representatives of Farm Security Administration, Agricultural Adjustment Administration and Soil Conservation Service, should be especially

helpful in determining how much change in crops and livestock might be expected in view of the ability of the farmers in various areas.

Since this important step in the cooperative program is already well organized and functioning, little emphasis needs to be placed on it in this paper except to insist upon the priority of responsibility remaining in the hands of research agencies and suggesting an enlargement of the advisory group as a means of assisting the next step. Some use of alternative goals through emphasis on production priority ratings for areas might improve acceptance and increase production.

Step III. Acceptance of Production Goals

Production goals are based on policies and objectives set up by the governmental war agency group and it seems logical that this group should be responsible for the final determination of the necessary compromises on the national and state level but in cooperation with the research agencies. The educational, action and pressure groups should act only in an advisory capacity.

Acceptance of production goals is extremely important since the success of the whole cooperative program is to a large extent based upon general agreement of all groups as to what farmers could do to maximize production for the war effort. A general agreement on these goals at the national, state and county levels given wide publicity by all groups through cooperative publicity would do much to increase confidence in the minds of the farmers as to the type of food production to be expected from the community in which they operate.

Step IV. Determination of Price Floors, Price Ceilings and Incentive Payments

If the profit motive is accepted as extremely important in the minds of farm people in determining what they should produce there is real need of determining necessary price floors and price ceilings for the major war food enterprises. In this connection the primary emphasis should be on price relationships among farm commodities with certain incentive payments used to supplement prices in directing farm production. The use of price floors has been clearly demonstrated in the case of hogs where all stages of pro-

duction are largely carried out by a single farm operator. Price ceilings have not functioned so well with beef cattle where a large share of the product is processed on a farm other than that of the original producer. In the case of corn, price ceilings functioned when they became definite and when a wavering policy ceased. Corn price ceilings might have functioned even better had they been less of a political football and had a policy been determined earlier relative to the proportion of corn belt feed grains to be made available to other areas. A further rise of a few cents in corn prices would have helped also to determine the proper amount of hog production. However, the changed feed situation, together with the recently declared lowering of hog price floors next year, may have the desired effect in reducing hog production.

Something further needs to be done in regard to the cattle situation in determining a long-time policy. How much further shall cattle numbers be built up nationally before attempting to draw on this food reserve as a means of improving the economic position of the cattle industry at the end of the war?

For new and untried crops, such as hemp in north-central Iowa, there is a real need for incentive payments equivalent to the next alternative enterprise to take care of unpredictable weather and soil risks. This is especially needed during the first year of such a crop and should be continued for an additional year or two on a somewhat smaller incentive payment basis until the agronomists and farmers are able to determine the factors necessary for successful hemp production. Of a similar nature has been the guarantee of soybean prices in the case of frosted soybeans in north-central Iowa last year. Without it there would have been a large reduction in soybean production in 1943 in an area which can and will produce large quantities of soybean oil for the war effort. As new varieties requiring shorter growing seasons become available such price guarantees will not be necessary or desirable.

Incentive payments might also be used to secure rapid changes in customs which will increase food production. As examples, contour farming and a limited amount of terrace construction on rolling land will permit greater feed grain production with reduced fertility losses. The use of certain fertilizers on farms for the first time is another example.

Certainly for the major war food commodities farm prices should be established for one production period ahead in order to remove,

for that production period, the price uncertainty confronting the farmer, if maximum production is to be expected.

This step in the program is primarily a function of the governmental war agencies with the pressure group, research, education and action agencies acting in an advisory capacity.

Step V. Conduct Informative Educational Phase of Program

This phase of the program would not only keep all agency groups informed but also the farmers and general public as to food needs, production goals and the underlying policies and assumptions.

Some such definite assignment of responsibility on this phase is necessary as previous uncertainty has resulted in open conflict as to agency responsibilities and many differences in policy interpretation. After definite responsibility assignment has been made the following steps are suggested as a possible means of developing a cooperative information program:

1. Clear-cut policy statement prepared by and sent over signature of all agency heads at national, state and county levels to various staffs.

2. Hold state and county meetings of various agency representatives for discussion, interpretation and local application of policies.

3. Give wide publicity to accepted policies in stories released by different agency heads indicating agreement. A definite assignment of responsibility is needed in each of the various phases to be covered.

4. Use of panels made up of various agency heads to discuss on the radio and in meetings the policies and their impact on the program of their particular agency.

5. Hold some county or local meetings with farmers as a basis for publicity stories and farmer reaction.

In a few cases where important changes in policy have been or will be made there is real need for a large coverage of farmers through many local meetings at which two or more different agency representatives might assist in the presentation of the material. The recent change in the hog price floor for 1944–45 and the setting of price ceilings for hogs this fall are examples of policy changes which might well form the basis for meetings of agency representatives and with farmers either before or after the policy has been announced.

Step VI. Developing Individual Farm Plans

For several years some attempts have been made to get agreement from the various governmental agencies on a unified farm plan which might be used as basis for individual farm planning by any agency representative. So far the results have consisted of several meetings and a plan acceptable to a few agency representatives at the national level. While there might be some need for having a uniform plan, the greatest need is to have a simple form which is easily understandable by farmers with a third grade education or less. Such a planning form should lead to a discussion of needed enterprise adjustments and a few important improved farm practices.

Planning procedure will succeed best with farmers as the amount of paper work is reduced and the amount of thinking and planning is increased. To be successful various planning procedures must be developed which can be used with various types and levels of farm families. For this purpose a cooperatively developed planning procedure might be used by Farm Security Administration, Soil Conservation Service and Agricultural Extension personnel to train Agricultural Adjustment Administration committeemen and other leaders in sufficient numbers to work with every farmer.

In one state it is being proposed that all educational and action agencies take the individual farm planning approach to maximizing production this next year. A group of assigned leaders (volunteer and/or paid) would be trained in farm planning schools out on a farm where both the principles of enterprise adjustment and increased efficiency through improved practices might be visualized and demonstrated. For example, recent studies in Iowa have indicated the possibility of further increasing intertilled crops about seven percent by adjustments in the level areas and 25 percent if needed conservation practices were widely adopted. Local leaders need training in determining soil types, slopes, etc., to be used as a basis for planning crop adjustments and conservation practices with farmers in those areas.

In additional general meetings of farmers in the area would be desirable to discuss policies and assumptions as well as the general principles used in making adjustments and improving efficiency.

The training of the state and local leaders is primarily an Agricultural Extension educational job with the assistance of Smith-

Hughes, Farm Security Administration and Soil Conservation Service personnel. The contact with individual farmers in the planning might involve a wide leadership group or be limited to Agricultural Adjustment Administration township committeemen.

In fact, except for the leadership training the individual farm planning on crop adjustments might well be limited to Agricultural Adjustment Administration, Farm Security Administration and Soil Conservation Service. However, the inclusion of livestock adjustments and improved practices makes it desirable to enlarge the groups working with farmers and in no case should contact with individual farmers be denied any agency or group.

Step VII. Conducting Educational (Subject Matter) Phase of Program

There have been wide differences in the speed and ability of individual educational agencies to adapt the use of their resources to maximizing production. Resistances to needed changes have appeared at all levels—national, state and county—including program planning committees of farmers on the county level. In general, however, the educational agencies have been in the lead so far as preparation and presentation of material designed to secure enterprise adjustments and improved farm practices through publications, meetings, publicity and radio.

In addition there has been much change in the internal organization of these agencies to facilitate the educational phases of maximizing production. For instance specialists have been shifted temporarily to other fields of work which would contribute more to the war effort. In Iowa the garden program has been conducted by a group of specialists in the fields of horticulture, landscape architecture, entomology and plant pathology. Even in the field of livestock production, the poultry, dairy, swine, sheep and beef cattle specialists have worked together in presenting a general livestock feeding program. In the field of Home Economics all extension specialists have been trained to present nutrition, food preservation, first aid and home nursing courses. Some lines of work have been dropped for the duration. Foresters have stopped planting trees and started cutting them down.

In Iowa project lists which totalled more than 150 different phases as a basis for local program selection three years ago have been reduced to 20 important War Emergency Programs (some of which are entirely new).

These changes are all in the right direction of using the resources of the Extension Service to maximize production. On the other hand there may be certain other important problems of farmers and their families requiring educational effort during the war period, too. In our state we face a revision of the School Code at the next legislature. Should a portion of our research and extension facilities be directed toward helping the people of the state understand their school problems and the suggested solutions? What basis of determination do we have for assigning personnel to discuss this and related problems in the field of youth and post-war adjustments?

In an attempt to answer this we are turning to small local county educational program development committees made up of the best thinking men and women interested in farm, home and youth problems and representing various types of families, various income levels, various types of farming and various tenure arrangements. These groups are taking a *farm family problem approach* toward the development of an educational program to meet these problems. They are considering both short-run and long-run problems in the light of the present and post-war needs. This family problem approach leads to considering the maximum use of all resources since family labor is such an integral part of the farm business. It also leads to more consideration of the varying management factor than the usual project approach. It helps local people to contribute their judgement and thought to the relative importance of the war programs in the county and to the methods by which they can be most effectively presented.

More assistance of other local groups will be secured by using local people to plan the program. Feed dealers and elevator groups will help on the educational livestock feeding program. Local veterinarians are holding livestock disease meetings. Lumber dealers are able to provide latest plans for equipment and buildings using available materials, including locally produced green lumber. Hatchery men are assisting with poultry production meetings. On a statewide basis a large oats milling firm has helped finance posters, bulletins, etc., and encouraged through price differentials the use of recently developed improved oat varieties without the usual advertisement requirement. All groups are willing to give their time and services to help with the war effort. Perhaps this cooperative effort can be continued and further developed in the post-war period.

As a means of assisting local groups in determining what educational methods might be used in each of the various programs the following chart has been prepared:

EDUCATIONAL METHODS AND HOW TO USE THEM

Device	Interest Creator	Information on What and How	Details of How
Circular letters	**	—	—
Publicity	**	*	*
Radio	**	S*	S
Personal contact	*	**	**
Demonstration	*	**	**
Meetings	*	*	*
Discussion group	*	*	S
Printed material			
a. technical	—	*	*
b. pamphlet	*	S	—

** Good.
* Fair.
S=for simple problems.

In the use of this chart it must be remembered that at least three contacts are considered necessary with almost any individual in order to get action on new ideas involving adjustments or improved practices. For the average person five or six contacts are more likely to be needed, and with many people nine or ten different contacts are needed. The desirability of more than one type of contact and of certain sequences is also evident from the chart.

In many of the corn belt states a great deal of emphasis has been placed on the neighborhood leader system as one means of contacting farmers. The chart above indicates its place and relative importance in the scheme of getting the job done. Where dependence has been placed on this method alone or on this method plus the printed publication, results have not reached the expectations of many. The reason is obvious. On the other hand the neighborhood leader system is an important contact method and might be further improved by additional leader training or selected programs. Additional contacts through radio, publicity and even meetings or demonstrations are necessary even with trained leaders making the individual contacts. This same criticism will apply to any attempt to accomplish all adjustments through the individual farm planning approach alone.

Various other techniques to secure adoption of adjustments and practices include individual or community awards for jobs well

done, production practice check sheets used in meetings as a basis for discussion or by individuals at home, listing of production practice priorities to show the relative importance of certain jobs to be done either by letters or publicity or both. And then there is the need for publicity and printed publications which keep farmers and the public informed of impending changes in policy, policy changes made and policy changes needed.

As a means of training the extension personnel, both field and specialist groups, as to the effect of the farm family problem approach upon certain programs designed to maximize food production, a series of two-day district conferences were held recently at which an individual farm was used as a laboratory to test out the application and possible effects of the program under consideration. The farm family was visited on the farm and the various resources observed and discussed. On the basis of these resources, committees of field workers and specialists were asked to prepare a set of alternative recommendations as to the adaptation of each program to this farm and the educational methods to be used in getting the job done with all farm families to be reached in the county. This procedure will tend to make specialist-prepared programs more practical and teach all personnel the broader problems involved in the maximum use of *all* resources.

However, any educational program whether in war time or in peace time must have certain broad objectives as a framework within which the phases of the program may function. With this in mind Director R. K. Bliss and his administrative staff of the Iowa Agricultural Extension Service prepared the following suggested objective and list of major lines of work for 1944:

OBJECTIVE:

The objective of the Extension Service for 1944 is to give every possible assistance to the war effort with particular emphasis in obtaining maximum food production and conservation.

In meeting this objective, it is necessary to reach every farm family and to enlist the cooperation of all groups and organizations in each community.

MAJOR LINES OF WORK TO BE CARRIED ON BY THE EXTENSION SERVICE TO ASSIST IN PLANNING FOR THE ADJUSTMENTS AND INCREASED EFFICIENCY NEEDED IN MEETING THIS OBJECTIVE:

1) Maximum production of crops for food, feeds and fiber
2) Livestock and poultry feeding, management, conservation and disease prevention and control

3) Farm and city gardens
4) Preservation and conservation of food and scarce materials with continued emphasis on health and nutrition
5) Mobilize resources by means of farm machinery repair, neighborhood and trade-area cooperation in the use of labor, machinery and equipment and individual farm efficiency

To coordinate the individual county programs and to meet the problems of each type-of-farming area in the state, a committee of field agents in each area will meet to discuss the following questions:

1) How maximize food production and conservation? What activities should be included in the program, how and when should these activities be carried on?
2) How reach every farm family most effectively in making needed adjustments and getting maximum adoption of best practices?
3) How obtain the fullest possible cooperation of all local groups (both youth and adult) and organizations in every community?

In the meantime a central staff committee of specialists will work on the same problems for the areas from the state viewpoint. At the annual extension conference to be held soon these two groups will work out the final details of the general program for the area but leaving each county considerable leeway as to methods and additional programs.

Through the Out of School Youth and Adult program this past year the Smith-Hughes group has also stepped out into new fields in an endeavor to assist with the war effort. The procedure has much to commend it in areas not already served by regular adult evening school classes or extension meetings. Some further effort should be made to present programs which more definitely complement or supplement the Agricultural Extension educational program rather than compete in communities served by both. As an example the work shop and machinery repair program are definitely fields in which Extension can do little if any laboratory work. On the other hand ten additional lessons on poultry production in O.S.Y.A. may actually reduce food production because of the over-emphasis upon one enterprise while the real improvement in production practices for the type of farming area would lie in the field of hog production or in several different enterprises, especially with several different farms represented.

Step VIII. Providing Needed Resources

Since farms vary widely in the relative scarcity of the four factors of production (land, labor, capital, and management) each indi-

vidual operator will be helped to add most to his present production by assistance from whatever agency can assist in supplying the limiting factor. The limiting factor on many farms may be machinery which can be remedied in various ways. These remedies include machinery repair campaigns, cooperative use of machinery, credit for the purchase of new or second-hand machinery, proper rationing of machines by the County War Boards or additional allocations of steel by the War Production Board to the machinery manufacturers.

On other farms the limiting factor may be credit for the purchase of feed, fertilizer or equipment. The various credit agencies including Production Credit Association, Farm Security Administration and the local banks can render the necessary help in these cases.

In other instances in which the land resources are insufficient assistance might be given in securing additional land through purchase or renting or in moving to another farm. The Farm Credit Administration and Farm Security Administration could give rather direct help in such instances. In many counties the office of the County Agent also acts as a clearing house for tenants wishing to change farms and for farms to rent. Where fertility resources are lacking the Tennessee Valley Authority can assist in certain areas. In a general way the proper rationing and allocation of fertilizers could assist greatly in maximizing production by determining priorities of various fertilizers for the various war crops and for various areas.

During the past year the labor factor has become critical on many additional farms. By Act of Congress assistance in supplying local labor needs is delegated to the Extension Service as an action program. Increased efficiency through labor short-cuts and neighborhood exchange of labor have been additional educational remedies suggested by the Extension Service. In previous years and even now in some areas the job of recruiting labor has been a function of the local branches of the U. S. Employment Service and in certain critical areas of the Farm Security Administration. Certainly there is need of some agency on the national level to be responsible for movement of labor from surplus to deficit areas.

On many farms, management is the limiting factor and on most farms quickly becomes a critical factor as other resources are added. Changing demands for war commodities may make it the

first limiting factor in terms of maximizing production. Management includes both the "know what" to produce and the "know how" to produce, viz. the planning and the operation phases. Consequently, this factor may be assisted by all the action agencies as well as the educational group. Even the pressure groups may give some general guidance as to what to produce. The most direct and most complete assistance to individual farmers in the management factor is offered by the Farm Security Administration and professional farm manager groups. Through experience the former group is particularly adapted to working with the farmers seriously lacking in land and capital as well as management resources. The professional manager group is particularly adapted to working with farmers with better than average resources. County Agricultural Agents, Agricultural Adjustment Administration committeemen, Soil Conservation Service, Production Credit Association secretaries and others can also contribute directly to the management factor but in a rather limited and piece-meal fashion. During the war improvement in this factor is particularly important on farms where labor resources are plentiful.

Step IX. Securing Needed Policy Changes

Experience during the past few years clearly indicates that needed changes in policy as well as carrying out of policies already determined do not always come about through the bureaucratic process or within the bureaucratic set-up. Outside pressure must be applied at times to secure necessary changes. Farmer thinking must have a direct channel to Washington either (or both) through pressure group organizations and/or through elected farmer representatives of the cooperators in action agency programs. Much good could come from a combination of both procedures, partially as a check upon each other and partially as a differing function relative to over-all policies versus internal policies.

The major problem in this step is to develop a more definitely "grass roots" leadership which in turn is not permitted to become bureaucratized. The solution partially lies in the procedure for securing expression from farmers and partially in an educational job of developing broad social and economic thinking on the "grass roots" level. The solution of the problem is a combined job of the educational agencies and the pressure groups. But as a problem it is characteristic of a democracy.

Regulatory Agencies

While a sixth category of agencies, namely the regulatory (on both the state and national levels) have been omitted in this discussion because of lack of time, they are not unimportant in getting the job of maximizing production done. Usually, however, regulatory agencies are either quite definitely institutionalized or serve as emergency aids to unpredictable problems, such as the corn borer, chinch bugs, etc.

Conclusions

In conclusion, it is believed that such a suggested cooperative program, based on definitely assigned responsibilities to the various agencies and groups of agencies, will result in: (1) better policy determination as a basis for maximizing production; (2) better understanding of these policies by agency personnel, farmers and the public; (3) less overlapping of functions of the various groups; (4) improved educational techniques; (5) reduced confusion and increased confidence of producers in their government, and above all (6) assisting farmers to produce the maximum amount of food and fiber for the war effort. While this topic might have been attacked from several different angles, it is hoped that the suggestions in this discussion have been provocative of further thought.

DISCUSSION BY GEORGE A. POND

University of Minnesota

I find myself in general agreement with Professor Allbaugh on the principal points presented in his paper. Any contribution that I can make will involve chiefly the pointing out of minor differences of opinion and in a further elaboration of some of his suggestions.

I wish to question how far we can go with his proposal of individual farm plans. Professor Case has pointed out our lack of sufficient capable farm planners to handle the task. Most of our extension specialists, as he indicates, are not trained in over-all farm planning. Professor Allbaugh suggests Agricultural Adjustment Administration responsibility for individual farm contacts. Not only do a large number of the Agricultural Adjustment Administration committee-men lack the ability to do effective farm planning work but their experience with previous programs of quite a different type may serve as an additional handicap.

To get maximum results in increased production and get it in the shortest possible time it would seem wise to devote our efforts to a limited number of definite specific objectives. We should pick out those shifts in crop and livestock production that can most easily be effected. We should pick changes in farm practices that are definite, clear cut, and insofar as possi-

ble, are put into effect through a single decision and execution. The longer the time it takes to effect a change in practice and the more continuous the decisions necessary to make it effective, the less hopeful is it of accomplishment. For example, the use of commercial fertilizer requires only the purchase of the fertilizer and its application. Livestock improvement through better feeding or improved sanitation involves continuous judgments and action over a considerable period of time and any lapse may nullify the results previously achieved.

A careful study of the response of the members of cooperative farm management services to suggestions for improvements in their farm business shows that those dealing with the choice of crops and specific crop practices are followed much more frequently than suggestions dealing with livestock adjustments and practices. I do not question the desirability of urging all types of improved farm practices at this time but I believe we will come nearer to achieving maximum production if we center most of our efforts on a few definite simple shifts in the choice of enterprises or in farm practice that can be accomplished quickly and easily and which, when once adopted, must be carried through.

I cannot indorse too strongly the suggestions in these papers that any program adopted be based on a thorough appraisal of the situation, that it be announced sufficiently far in advance to enable the farmers to plan for it, and that any price or other inducement used to secure its adoption be guaranteed for a sufficient period of time to enable the farmers safely to adopt it. Professor Case points out the difficulty and danger involved in making quick shifts in either farm organization or farm practice without some assurance that the conditions that call for or make possible the shift continue long enough to justify the change. It is easy to unbalance the farm business. What we need is more stability.

The responses to questionnaires sent to a large number of capable representative farmers in Minnesota indicates strongly how these men feel about more stability in the program. One farmer said, "Stop roll-back and subsidy talk and give the farmers something definite to work on, both as to kinds of food wanted and price. If it is either high or low is not the all important factor. Some days the report reads that feed bins are overflowing. In a short time the feed has disappeared and where, nobody knows. Now produce only the livestock you can feed. Tomorrow it may be something else. I hope we can have something definite to work on in the all-out food program. Tell us what you want and give us a price that we can feel will take into consideration all the production handicaps and we will go faster than ever." This is fairly typical of a large number of the replies received. I realize that the changing fortunes of war and the unpredictability of weather make it impossible to forecast the future with certainty, but much of the instability about which the farmers complain is the result not of these things, but of failure of the program makers to use all the information available and to project the plan sufficiently far into the future.

It is highly desirable not only that plans be announced in advance, but that farmers be fully appraised of the needs that occasion them. "Theirs not to reason why, theirs but to do and die" may be acceptable as poetry,

but it is hardly the attitude to take toward farmers if their full cooperation is to be assured. It may be necessary for military reasons to withhold some details, but most of the basic facts as to the nation's needs for farm products should be presented as fully and frankly as possible. Not only will it result in more willing and intelligent cooperation on the part of the farmer, but it will be a good thing for the planners. They are much less likely to make mistakes if they know their judgments will be promptly reviewed by the farmers who are to carry them out. If unforeseen circumstances necessitate changes in established programs, farmers will accept them much more willingly if fully informed as to the need for these changes.

Professor Allbaugh suggests that "each farmer is basically patriotic and will maximize production when patriotism and profit are combined." I'm glad to note that he put patriotism first but I am a little disappointed that he placed profit so close behind it. The farmer needs a price that will enable him to provide for his family, pay his operating costs, and maintain his plant. Furthermore, as Allbaugh points out, he must be protected from losses on untried war crops and from those that result from wide deviations during the emergency from his established balanced production program. Beyond this, most farmers ask little except to know what is expected of them. War is the occasion for sacrifice and not for profit making. I am convinced that far more farmers will respond to the patriotic appeal than to the profit motive. Our extension forces have for more than a quarter of a century been advocating farm practices that would increase profits. The slow response through all these years suggests that we had better bring a new and more appealing incentive into the picture.

FARM WORK SIMPLIFICATION STUDIES*

E. C. YOUNG
Purdue University

IN THE early days of agricultural education it was expected that the agricultural colleges would be essentially trade schools. Most of the early agricultural colleges attempted to carry out their programs along strictly vocational lines. All are familiar with the evolution away from these early educational efforts to the agricultural college as it is organized today. Even in the vocational schools the scientific rather than the strictly farm practice concept has prevailed. I want to make clear in this paper that I have no expectation that this trend could or should be reversed. Much of the progress in agriculture and much of the rise in the farmer's standard of living has come about because of scientific research and the application of the findings to farming. My proposal is, rather, that the scientific method be applied in the field of farm practice just as it has been applied so successfully in other areas. As we are all aware, if a young man wishes to learn how to operate a farm successfully, he cannot depend exclusively on the agricultural college. He must, in addition, either have been raised on a well-operated farm or he should gain experience on one either during or after his college career.

In the fields of agricultural education which are most nearly related to farm operation, we have gradually drifted further and further away from the problems of operation. This is partly because the most attractive fields for research have been those dealing with general organization problems or with the technical aspects of agricultural engineering. In the field of agricultural engineering the emphasis has been placed on the development of new equipment and facilities and the basic research underlying such devices. In farm mamagement the research has been interested in the problems of general organization, the size of the business, the selection of enterprises, the organization and adaptation of labor, power, and equipment, and farm finance. As our technology has increased, farming has become steadily more complicated and the problems of farm operation have become increasingly difficult. When new research has been produced by the Experiment Station, the common procedure has been to make it available to the farming community,

* A paper presented at the meeting of The American Farm Economic Association at St. Louis, September 15 and 16, 1943.

teach it to students, but give little or no help in the application of these findings to the specific farm jobs which were involved. One reason for this has been that no one has yet developed a technique for farm job analysis. Most farm practice studies that have been made have been superficial. They were usually applicable to only very limited geographical situations, and the job was described but not analyzed. The way jobs are done on individual farms does and should vary widely from farm to farm in the same community and from community to community.

The labor and managerial cost in farming is the largest single item of cost in farm operation. This cost item increases in importance with the passage of time and with technological progress. Efficiency in the operation of a farm may be gained in either of two general ways: first, through the organization of the entire farm enterprise, and second, through the organization of each specific job. Attention in farm management has been focused almost exclusively on the first of these. The following table is given to suggest the importance of the area which has been neglected. The figures are taken from a study of the cost of producing milk in northwestern Indiana. The most common organizational factor which relates to the efficiency of a dairy enterprise is the size of the herd. These 105 herds were, therefore, divided into three groups, according to the average number of cows kept. You will note that with small herds, averaging about ten cows, 132 hours of labor were required to keep a cow a year with sixteen cows, 115 hours were required, and with the 23 cow herds, 96 hours were required. The economies in the larger herds are obvious and need no discussion since we have emphasized them over and over again. The study of the distribution within these various classes, however, is extremely interesting. The actual labor requirement on individual farms with ten cow herds varied from 75 to 307 hours per cow per year. For 16 cow herds the variation was from 65 to 300 hours per cow per year, and with 23 cow herds, it was from 48 to 235 hours. The semi-quartile range shown in the table tells the same story. While there were many factors other than the organization of the specific job involved, it is clear that the way the job was organized on individual farms was a much more important factor in explaining the efficiency of a farm than the general organization factor, size of herd. There was no significant correlation between labor input and milk production or between labor input and the efficiency in the use of feed. A similar

study with poultry flocks gave even more striking results. We, therefore, came to the conclusion that there were tremendous potential economies to be gained from specific job analysis. In order to make much contribution in the field of job analysis it is necessary to develop a method which is applicable to the wide variety of jobs which are done on farms and to the wide variation in the methods of doing a particular job which are made necessary by varying operating conditions.

TABLE 1. LABOR REQUIRED BY DAIRY COWS.—105 FARMS IN NORTHWEST INDIANA PRODUCING MILK FOR SALE AT WHOLESALE IN 1940

	Small herds (12 cows or less per farm)	Medium herds (13 to 20 cows per farm)	Large herds (more than 20 cows per farm)
Number of cows per farm	10	16	23
Number of farms	38	37	30
Hours of labor per cow per year			
Average	132	115	96
1st Quartile	110	92	75
3rd Quartile	176	153	139
Range	75 to 307	65 to 300	48 to 235

In order to get started, we turned to the industrial engineer who has made so much progress in this direction in industry in recent years. We have learned that with modifications many of the techniques which have been applicable in industry may be applied to the problems of farm job analysis. For the purpose of this discussion jobs may be classified as follows:

1. The occasional job. These are jobs that are done once or twice a year. They may be from an hour's to a month's duration. Many of these jobs are of such a nature that one would not be justified in spending much time in working out a detailed procedure. Other jobs of this classification may have a high labor requirement for the season in which they are performed. Harvesting and packing operations with intensive crops fall in this category. Although seasonal in nature, such jobs, especially those involving many repetitive tasks, can well be subjected to detailed study.

2. Frequent jobs. These are jobs in which the same thing is done over again and again and are most commonly found in the livestock enterprises. While not strictly repetitive in the sense that many industrial jobs are repetitive, they represent a high total annual labor requirement and can be analyzed to advantage.

There are two principal approaches to job analysis: first, het general approach, through process analysis and second, the specific, more detailed approach, through analysis of individual operations. In process analysis the entire job is brought under study, as, for example, the entire job of feeding cows, milking, and milk handling. In operation analysis repetitive tasks, such as the milking of cows or the picking of tomatoes, are systematically studied. Savings of time through operation analysis are usually small in absolute amounts per performance, but multiplied by hundreds of performances per day result in a large total saving.

In the case of the occasional job of low labor requirement, the most useful approach is no doubt one in which the operator is taught the general principles of job analysis with the hope that he become so conscious of the desirability for organization of jobs that he develops a habit of doing things the easy way. Here again the saving in a single job may be so small that it appears almost ridiculous to become concerned about it. In the aggregate these small savings add up to a large total for the year. The development of this habit of doing jobs the easy way may make the difference between a well managed efficient farm and a poorly managed one. In the case of the occasional job with a high labor requirement or of the frequent job, a more detailed analysis is desirable.

On the basis of our work up to the present time we have come to the following conclusions:

1. The field of farm job analysis offers tremendous opportunities for research and teaching in an area that is comparatively undeveloped.

2. We are justified in making a beginning in instructional work in this field with facilities already available in most institutions.

At Purdue we are depending and expecting to depend on our Industrial Engineering Division to teach the principles of work simplification. This will include:

1. The most modern methods of analyzing processes, operations, materials, and equipment to find the most economical way of doing the work, i.e., process charts, operation charts, motion analysis and motion economy.

2. The standardizing of tools, equipment, and material.

3. The use of stop watches to determine the time required to do the job.

4. The best methods of training workers.

5. The proper approach to the human relations problems involved in the performance of these techniques.

At the present time this is being adequately done in a one term course including two three-hour periods per week. The application of these principles will be taught in the School of Agriculture in connection with courses in farm mamagement. We are giving consideration to the development of a course which we will call "Farm Operation," which is contrasted with our present course, which is entitled "Farm Organization." Perhaps this course can be developed most advantageously by a cooperative arrangement between the Departments of Farm Management and Agricultural Engineering. During the past year we have taught some of these applications in connection with our course in farm organization. Perhaps this will suffice for the present until the research has progressed to a point where more teaching materials are available.

We are fortunate at Purdue University in having a very good Department of Industrial Engineering. Some of the professors in this Department have or have had practical contacts with farming. For several years, we have discussed the possibility of undertaking a cooperative study of farm work simplification. Last year practical arrangements were made to make a beginning. Shortly thereafter the General Education Board made a substantial grant to initiate this work and to try it out in other land grant colleges. As a result, research projects have now been set up in twelve land grant colleges. These studies have been under way during the last six months and preliminary results are now available. Since this is a new field of study, we expect failures. We also expect that results in many cases will be disappointing and that progress will be slow. If this were not the case, our experience will be different than that in other fields.

The location of and a brief description of the cooperating projects are included in the following table.

In the early stages of this research much time has been taken in determining research techniques, productive areas for study, and the development of a research procedure applicable in agriculture. The most difficult problem has been to develop a type of study from which it will be possible to generalize since individual farms cannot support standards departments as in industry. As already noted, individual farm jobs are variable and small. The possible savings on a particular job on a particular farm are small, yet these small savings applied to all the jobs on a farm add up to very large sav-

ings on a single farm and to staggering totals for a producing area. This failure to generalize has been the principal weakness of farm practice studies in the past. Reference to some of the work already reported will show that real progress has been made in this connection.

TABLE 2. LOCATION OF COOPERATING FARM WORK SIMPLIFICATION PROJECTS

State	Scope of Research	Researchers
Colorado	Beet and potato harvest.	L. J. Paschal
Florida	Winter vegetables.	M. E. Brunk
Illinois	Beef cattle feeding; asparagus and sweet corn harvest.	J. E. Wills
Indiana	Tomato peeling, picking; canning factory operation; hog production.	J. W. Oberholtzer L. Haverkamp
Kentucky	Tobacco.	E. J. Nesius G. B. Byers E. R. Young
Minnesota	Dairy production.	S. A. Engene
Nebraska	Hay making; potato harvest.	G. E. Hendrix
New Jersey	Potato harvest; poultry and egg production.	H. F. McFeely
New York	Dairy; hay; potatoes.	I. R. Bierly
Oregon	Harvesting of specialty crops—beans, hops, nuts, fruit.	Clyde Walker
Vermont	Dairy.	R. M. Carter
Washington	Apple picking.	C. H. Zuroske

We have not been concerned as to whether these studies were classified as management or engineering. They have been set up in the cooperating institutions in such a manner as to make use of the available manpower and research resources. The determination in each instance has been made by the administration of the cooperating institution. As the work has progressed, however, it is clear that from the results will come many suggestions for research that is clearly in the field of engineering. The summary of the research in potato harvesting in New Jersey reported in the last *News Letter* is typical.[1] Research in management and engineering has much more in common than we have realized. These studies offer an opportunity for productive cooperation in studying the problems of farm operation. At Purdue we have organized a Farm Work Simplification Laboratory not identified with any specific department. Particular projects may involve cooperation of the Motion and Time Laboratory, the Department of Agricultural Engineering, the De-

[1] H. F. McFeely, Work Simplification News Letter, November, 1943.

partment of Agricultural Economics, and the Department of Animal Husbandry. The administrative problem is similar in many respects to that encountered in the plant and animal sciences.

In addition to the research projects which have been set up, a number of training schools have been undertaken in which research workers and others have been given an opportunity to become acquainted in this area. In the Spring of 1943, three intensive training schools were held for research workers who were associated with these projects. In August, a work simplification school was held in which 32 women from 24 states were in attendance. Most of these women were extension workers. In December, 1943, a farm work simplification school for extension workers was held. Twenty-five men engaged in farm management extension, agricultural engineering extension, and the Emergency Farm Labor Program attended. I wish at this time to call attention to the obvious limitations of these schools. The justification for holding them is that we hope to get a representative group of research and teaching and extension people started in this new area. We also hope to capitalize on the results of our research at the earliest possible moment because of the need for labor efficiency under war conditions. We recognize that we have only made a beginning in this field and that the materials which can be presented in these schools is limited because of the lack of research.

In closing, I would like to summarize in this way. We are trying by this approach to teach farmers how to plan their farming operations. In the past we have continually insisted on the importance of planning without providing much plannning machinery. We have done a fair job of teaching long time general farm planning through the use of programs and budgets. Year to year planning has been taught mostly in terms of outlook without much reference to operating cost changes incidental to shifts which seem justified on the basis changing supply and demand. It is in the area of day to day and week to week planning that we have done so little. About all we have said about it is to emphasize its importance. The following quotation from the speaker's own writing[2] about covers the subject.

"Among the materials you have to work with and must manage effectively is time. You have as much time to work with as any

[2] Farm Engineering and Management, Assignment Four, Page 4, National Youth Foundation, 1940.

other farmer—no more, no less. How you use it affects your results. Planning your use of time is of the very essence of good farm management. A good farmer knows, tonight, what he is going to do tomorrow and the day after, as well as next week. He knows, too, what he is doing to do if it rains. You can explain many of the differences in results obtained by successful and unsuccessful farmers by their differences in day-to-day planning, thinking ahead, getting everything ready beforehand. Success with crops and livestock depends, to a very great extent, on doing the right things, at the right time, in the right way. The man who has planned his work and is ready to cultivate when the soil is in the most favorable condition, and when weeds are at just the right stage for destruction, not only stands a good chance of getting a bigger crop than his planless neighbor, but also is likely to get it with less work."

When the farmer or student reads this he is not much better off than before. He already knew this was important. What is needed is a method of getting these jobs done. From the standpoint of teaching it involves creating in the student habits of thinking, the development of "time consciousness." It involves the teaching of principles of job analysis and making this a part of the student's life process. Some people seem to be born with it. Actually, it is usually traceable to the conditions under which the student obtained his farm experience. If his father was efficient and methodical in his operation, the son is likely to be so, also.

We believe that people can be taught to approach the jobs they do in a methodical manner; that they can be taught to assume the same analytical point of view with regard to their own physical activity that we ask them to take with respect to the things that surround them.

IMPLICATIONS OF LAND VALUE CONTROL*†

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ARE land value controls needed? And if they are needed, what kind of controls should be recommended? These are the two critical questions uppermost in the minds of those studying the present farm land situation. An attempt will be made to answer both of these questions in the discussion which follows.

Whether or not there is need for control depends in the first instance on the position taken regarding the proper sphere of government activity. It is assumed that the controls used would be instituted and applied by some form of local, state or national government. Hence a *laissez-faire* policy would place any land market regulations, as well as many of the present wartime production price and consumption controls, outside the province of the government. Although extreme *laissez-faire* advocates are few and far between, it is necessary for the sake of clarity to point out that in the eyes of those who hold such a view there is at no time any need for controls in the land market.

A few students of the subject favor government controls in some fields but not in the farm land market. Their arguments are usually that controls are not necessary. They point out that since land is not produced there are no rationing requirements to protect the production of war material. They also point out that anyone who buys land, expecting to pay for it over a long period, does so at his own risk. If the price he pays eventually turns out to be too high, that is his own personal loss. In short, the freedom to buy and to sell land, according to this group, should not be restricted even in wartime.

There is one telling argument which must be faced by those who do not favor control in the land market; namely, that those who do buy land at what turn out to be high prices have insisted in the past and will likely insist in the future on government controls and subsidies when prices and other conditions make it difficult and impossible for them to meet their financial obligations. Furthermore if absentee investors should buy such a large percentage of the land

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in any area that tenant farmers wanting to purchase should find it difficult to become owners there is likely to be agitation and legislation as there has been in the past to provide credit and other aids for farm tenants wanting to buy.

It is easy to generalize about the wonderful advantages of freedom in the land market and the evils which come from restricting these rights. It is an entirely different matter if we examine carefully the results which come from the complete absence of any regulation. The history of the free and unrestricted purchase and use of some of our forest lands, and more recently the free use of land subject to severe erosion suggest that some regulations might have been desirable in the early stages since controls were necessary later after much damage had been done. Rural zoning, a relatively new regulation, is likely to become permanent as a desirable restriction against too much freedom in the settlement of land. Finally there are evils which may develop in an unregulated wartime and post-war land market. These evils include rapidly rising land prices, excessive loans, and abnormal purchasing of land or speculation by absentee investors. Land market controls will be fully justified if they prevent the occurrence of these undesirable conditions.[1]

Another group favors controls to prevent a land boom but argues that since there is no land boom we do not need any controls. The arguments presented by this group in support of their position are many and varied but usually they boil down to two; first that the large amount of cash being paid in buying land makes controls unnecessary and second that there is no boom because values are no higher now than they were in the period prior to World War I.

Let us consider the first point, that there is no land boom and probably will not be a boom because purchasers are either paying all cash or are paying such a large percentage in cash that they will not be caught with heavy debts in any subsequent depression. Fortunately it is true that buyers have been paying larger percentages of the purchase price in cash. But this is no guarantee that this condition will continue or that you cannot have a boom when as much as half the purchase price on the average is paid in cash.

A higher mortgage debt per acre will probably follow the increase in land prices. It may be possible for the average purchaser to pay

[1] For a more complete discussion of these points see articles by the author and by Regan and Clarenbach in February, 1943, JOURNAL OF FARM ECONOMICS, also see Land Boom Controls, Pamphlet No. 9 in Wartime Farm and Food Policy series, Iowa State College Press, Ames, Iowa, 1943.

one-half of the purchase price in cash but even if this is true the debt per acre will rise with the price of land.

The following quotation is pertinent; it is taken from a preliminary statement by the Bureau of Agricultural Economics covering the land situation in the North Central region during the second quarter of 1943.

"The increase in down payments on mortgage-financed properties has been insufficient to offset the increase in land prices, and the mortgage debts per acre in properties changing hands continue to increase, these increases being especially noticeable in the better land areas of this region."

A land boom is possible without small down payments and second or third mortgages. True, the amount of speculative activity and the extent of "shoe-string" purchases determines the severity of the financial losses in a subsequent depression. But it is conceivable that land prices could be bid up much higher than during the last boom and a large volume of farm sales occur even though there was little speculating and few sales with small down payments. Although such a boom would not affect speculators and would not cause as many foreclosures in any depression which followed, nevertheless it would result in a heavy drain on the resources of the farmers who purchased and would require painful readjustments for those who made financial commitments based on the inflated values. I have in mind the tenant farmer who has saved $8000 since the depression. If he had bought the 160 acres he operates in 1940 at $100 an acre, paying the $4000 he had saved at that time, he would now owe only $8000 if he applied his additional savings of $4000. If he buys now at $150 an acre and applies all of his savings, he still owes $16,000 or what the farm would have cost three years ago and in addition he is in a tough spot if a depression or dry year comes along.

A second argument advanced to prove that there is no land boom is based on a comparison of the present land value index with that of the base 1912–14. It must be admitted at once that values today are only slightly higher on the average than in this base period of 1912–14. In fact, the latest Bureau of Agricultural Economics index for the U. S. for July 1, 1943 is 102 whereas the March 1, 1914 index was 103. If our standard of what is "normal" were the 1912–14 level of values, there would be merit in this argument that land values today are not out of line, but actually this 1912–14 period is

not a good base to use in measuring present values. In the first place there are various factors which make the 1912–14 level higher than would be expected now. Values in the early period were higher than they had ever been before, reflecting in part a speculative interest. Prices had been rising ever since the 90's and many people thought they would continue to go up. Taxes were much lower than they are today. Taxes averaged 23 cents an acre in the 1912–14 period according to the Bureau of Agricultural Economics and 39 cents an acre in the years 1937–39. Furthermore, the standard of living on the farm is decidedly higher now than in the early period. On the other hand, there are other factors that would justify higher values today. These are lower interest rates and lower commissions on loans, higher yielding crops such as hybrid corn, and new high value crops like soybeans. What is needed, in view of the many changes since 1912–14, is a new and more recent base.

A much better index base to use at this time is the period 1937–39 or 1937–41. It makes little difference which of these periods is used because the U.S. average is the same for both periods. In fact, there was practically no change in average land values during this 5 year period. The U.S. average fluctuated between 84 and 85 percent of the 1912–14 base during all five years. What is more, the fluctuations within regions were also remarkably small in these years and the fluctuations in many of the states were also amazingly small. The fact that this recent 5 year period was a unique interval of land value stability is a good reason for adopting it as a base.

A base like 1937–41 has the advantage of being a desirable objective. Values in this period were not only substantially above the low point of the depression but they also reflected the judgment of people who had just come through an extreme boom and depression. A level of this kind, if used as a norm, allows a high standard of living on the farm and makes it easier for the tenant to become an owner because of smaller payments and less risk.

The 1937–39 period has already been used to good advantage as a base for comparison. Regan and Clarenbach in their article on Land Market Developments and the War in the February issue of the JOURNAL OF FARM ECONOMICS show land value comparisons in World Wars I and II. For World War I they use the 1912–14 base and for World War II they use the 1937–39 base. Their figures for the U.S. show a 17 percent increase in land values during World War I up to March 1, 1917 and a 9 percent increase during World

War II up to November 1, 1942. If these figures are brought up to date they show an increase of 29 percent during World War I up to March 1, 1918 as compared to a 20 percent increase in World War II up to July 1, 1943. The rate of increase this year, it is evident, is rapidly approaching the boom time record set during the last war and post-war period.

Now is the time to put land value controls into effect. There are various reasons for urging a control program at this time. In the first place, controls should be set up before a land boom has developed because it is much easier to set up controls before land values have risen. If, for example, it is decided to set a ceiling price on land, it would be much easier to set this ceiling at the present level than to wait until the price has risen 25 percent and then attempt to reduce prices to the present level. Another argument for prompt action is that a delay in establishing controls will allow much of the damage of a land boom to occur before controls go into effect. Furthermore, it takes time to get necessary legislative action for most controls so that at best controls cannot be applied until months after they have been proposed. Finally, it is desirable to push for controls now because if they are not needed there will be little, if any loss, while if they are needed they will be ready to do the job.

Those who argue that we should wait for a boom until we set up controls are virtually asking that controls not be used. It is not easy in the first place to recognize a boom. Just when do we enter a boom stage? Since farm economists do not agree on what a boom is, except in a general way, it is reasonable to expect widespread disagreement as to whether or not at any one time we are actually in a boom period. And even if agreement could be reached on the existence of a boom, the time required to get necessary legislation and to set up the regulation machinery might easily be so long as to allow a boom to run its course before the regulations materialized.

Sufficient evidence is at hand to indicate that a land boom is now underway or that the possibility of a boom is very real. Some areas, it should be pointed out, have shown little if any activity or price rises, but other areas have had great activity and rapid advances in land prices. For the country as a whole the situation is alarming. Those who are in the best position to know this situation, the Bureau of Agricultural Economics, have the following to say in their recent release in August:

"Farm real estate values continued to move upward during the four

months ended July 1, 1943, bringing average values for the country as a whole above the pre-World War I level for the first time since 1931. Increases occurred in all geographic divisions and in more than two-thirds of the States . . . .

"The largest volume of voluntary sales since 1919–20 was reported for the 12 months ended March 15, 1943 . . . . Evidence of some speculative activity appeared in several Western and North Central States . . . .

"Speculative buying for early resale appears to be increasing, particularly in certain parts of the country . . . . In the North Central region, "speculation" is indicated as the reason for purchase by buyers in a larger proportion of cases than at any time during 1941 or 1942 . . . . In many respects current developments in the land market offer a striking parallel to those of the World War I period, which culminated in the 1919 land boom and subsequent collapse."

Land boom stories are another indication that the early stages of a land boom are already with us. It was common to hear these stories this summer if one spent any time around a courthouse or a real estate office in the Corn Belt. These stories were likely to be anyone of four common types. The first type is about the farmer who sold his farm at a good price hoping to better himself by buying another farm at a lower price. Sometimes he was interested in getting a larger or smaller place, or in changing his location. In most cases of this kind he isn't able to find another farm at a price even as low as the one at which he sold. In other cases he decides to buy back his old farm at a premium over what he sold it. The second type of story is the purchaser who decides to buy at a given figure, but he hesitates, and during the hesitation the price is raised, so that he has to pay dearly for his hesitation. The third type is about the "potential profits" made by those who have bought recently and have already received offers to sell at a higher figure. Frequently one hears of the man who claims he can make 25 or 50 percent on his investment within a year if he decides to sell. The fourth type is the absentee investor who is out buying up farms as a hedge against inflation and as a place to put his surplus funds. Unfortunately most of the land boom stories, when they are investigated, will turn out to be true. At least that is my experience. With slight variations the land boom experience of 1918–20 is repeating itself just 25 years later.

Kind of Controls

The second major question which confronts us is what kind of controls are needed. There are four types of controls that have been

suggested, credit restrictions, taxation of land sale profits, price ceilings and restrictions on sales by the use of permits. Control of general inflation by heavy taxation and compulsory bond buying is another suggestion which is advocated by many who do not favor land market controls. We will consider this type of control first.

Control of general inflation is by all odds the best means of reducing the likelihood of a serious land boom. An extremely heavy income tax or compulsory bond buying that would absorb excess funds would remove the cause of a land boom. Moreover, it would curb inflationary developments in other fields besides agriculture. If there is any chance of obtaining a program of this type it has my wholehearted support. However, the record of the last two years gives little encouragement of success for this program. What it appears we will be forced to is to apply for a specific control program for farm land. On this assumption the following specific controls are suggested:

Credit control, the first suggestion, is merely limiting the amount which can be loaned on farm real estate. This restriction would be relatively easy to put into operation but not very effective as a control. The main advantage is that existing wartime laws provide authority to use this regulation without additional legislation. The chief disadvantage is that limiting credit would have little if any effect on the absentee investor who is actively bidding up the price of land now with a large surplus of cash to invest.

Taxation of land sale profits, the second suggestion, would most likely take the form of a law placing a heavy tax on the profit made from the resale of farm real estate. No attempt would be made to tax the first sale after the law went into effect. The objective here is to discourage speculation in land. Before such a control can be used, specific legislation providing for this tax must be enacted.

Price ceilings on land, the third suggestion, would likewise require specific legislation. Special appraisal procedure would be necessary in establishing ceiling prices on farm land because each tract of farm real estate is unique. But this could be handled without much difficulty by requiring a special appraisal of each tract to be sold. The owner, in other words, would not have a ceiling price placed on the farm unless he planned to sell. The seller would also have to determine which one out of several buyers could have the farm at the ceiling price. Although price ceilings on land would not be easy to administer, the job is not an impossible one by any means.

Permits to buy land, the fourth suggestion, might readily be used jointly with price ceilings. That is, each purchaser would secure a permit to buy and at the same time the price paid would be limited by a ceiling. The use of permits would retard land sale activity and restrict purchases to those who could show good reasons for purchasing at the time. There might be a wide range in the requirements to be met before a permit is granted, at one extreme practically no restrictions might be set, while at the other, a definite list of qualifications might be required to obtain a permit. Legislation authorizing the program would determine the limits of this range.

The four suggested controls have been listed in inverse order as to their effectiveness and in order as to their ease of application. Credit controls are likely to be the least effective and the easiest to apply while permits are likely to be the most effective and the most difficult to obtain through legislation.

More important by far than the choice of a control is the application of any control at this time. Time is of the essence and any hair splitting arguments about which control to use may result in postponed action and real land boom damage. If none of the controls suggested can be obtained, and if little hope exists of obtaining drastic measures to curb general inflation, then other possible means of preventing a runaway land market should be sought. And in any event an effective campaign of education on land boom evils can be waged.[2]

DISCUSSION BY R. C. ENGBERG

Farm Credit Administration of Omaha

As long as land speculation, foolish or otherwise, does not injure or affect any one but the investor, the public need not be concerned in impos-

[2] A good example of this educational service is provided by material which is being written by farm economists and used by extension workers in farm meetings. The following quotation from a recent South Dakota bulletin (No. 370) by Gabriel Lundy is a case in point.

"*Individuals may disagree as to means by which to prevent a repetition of the land boom and farm foreclosure losses associated with the World War I inflation. But all who are interested in the welfare of agriculture presumably would like to see that the current high farm income be used to pay off old debts and to increase the proportion of owner-operating farmers.* This can be done if land prices are not inflated to the point where land-buying farmers will be loaded down with unbearable mortgage debts.

"Although there are some government promises of price supports for certain farm products extending two years beyond the end of World War II, this is no justification for basing land values on the current record farm income. All our large wars have been followed by long and severe depressions . . . . The only safe course to follow is to be prepared to survive a postwar depression." p. 25.

ing any limitations on it. Experience has shown, however, that when a land boom occurs, and farmers pay prices for land which are excessive in relation to their long run earning capacity or contract obligations in making such purchases which will be impossible to pay out of subsequent years' earnings, there is definite and substantial injury to other people. It is these innocent bystanders, therefore, who need protection through the imposition of controls on the value of farm land.

The experience following the land boom of 1918–1920 will throw some light on the possible extent of such injuries to innocent parties. One of the most important groups affected was investors in securities or equities based, in whole or in part, upon inflated farm mortgages. Such investors included owners of farm loan bonds, bank depositors and stockholders, policy holders and stockholders of insurance companies, and others. The losses to such investors resulting from scale-downs and foreclosures of mortgages following the first world war, ran into the millions of dollars. In addition to such direct losses to investors, there was a further burden upon taxpayers. Several states, particularly South Dakota, Minnesota, and North Dakota, had extensive losses because of heavy loans made on farm lands, and these losses were absorbed by taxpayers in the states involved. The Federal government advanced 325 million dollars to the Federal land banks for capital stock and surplus at least in part because of potential losses growing out of the land boom. If the Federal government had not come to the assistance of the banks, the losses to bond holders might have been substantial. While none of this investment actually may turn out to be a loss to the Federal government, it nevertheless represents an outlay of public funds necessitated in part by the excesses of the land boom. Losses to bondholders of joint stock land banks which did not receive federal aid, actually were fairly heavy.

It may be argued that in the future, lenders will be more cautious because of past experience, and that such losses will not be repeated. While it seems reasonable to expect that lenders generally should benefit from that history, it would be very risky indeed, to assume that all handlers of other people's money will keep their heads throughout the danger period ahead. It would be an assumption not warranted by what we know of human nature.

Aside from the effect upon other investors already mentioned, there was a further injury upon society resulting from land booms. At least temporarily, people who lost their resources as a result of excessive commitments, became a burden on the other people of the community. Many required public relief, and their lowered standards of living made it more difficult to maintain retail services, churches and schools. The local tax problem thus was aggravated, and the general morale of the community was lowered. These conditions intensified the need for and the cost of the Farm Security Administration and other forms of government rehabilitation.

A third type of public injury is that these excessive land prices absorb funds that should be used instead, in buying war bonds. To that extent, it is a handicap to the whole anti-inflation program, and requires little

additional comment. Current data available indicate that farmers generally are not buying enough bonds, and the limitation of land prices would remove in some cases a competing method of using funds that should be invested in bonds.

In summary, I have tried to establish only one point. In my opinion, land value controls are not desired for the purpose of protecting individuals against themselves by reducing the opportunity for making foolish investments in land. That principle should be retained as far as practicable. The purpose of land controls, rather, is to protect other people from injuries which inevitably result from such investments. The experience following the land boom of 1918–1920 shows that such injuries are extensive enough to justify public action.

DISCUSSION BY HARRY A. STEELE

Bureau of Agricultural Economics

In order to discuss the implications of land market control it is necessary to first answer the question of why we want to avoid a land boom. Some of the reasons given by groups considering this problem in the Northern Plains are as follows: (1) Excessive activity in the land market would cause some interruption in war food production. (2) Inflated land prices at the end of the war would make it difficult for farm boys returning from the service to buy land. (3) The farm as a business or job opportunity needs to be protected. (4) The farm as a home should be protected not only against forced transfer, but there should be sufficient income left after land charges are met to maintain an adequate home and living standard. (5) There is a public interest in the pattern of ownership of our farms and in the tenure status of farm operators.

The problem of land price inflation or deflation in relation to normal values has some peculiar aspects in the Plains states. In addition to the wide price changes that occur in the major products produced, there is a wide variation in production due to climate. These major factors have a way of combining that multiplies the risk involved in farming and results in excessive profits or heavy losses. In the 1930's a combination occurred in a drought and depression during which land could hardly be sold at any price. There was a total of 625 forced transfers per 1,000 farms in the period from 1926 to 1940.[1] This was the reverse side of the "hedge against inflation." Now we have had 2 or 3 years of a favorable combination of high rainfall and prices. With the elimination of restrictions on wheat production there is a prospect for high returns, provided the weather continues to be favorable. There is as much danger of overcapitalization based on above-average production as there is on above-average prices. The Plains farmer is now recovering some of his financial losses of the 1930's. *It would be disastrous if these reserves for future years were expended in bidding up land prices to excessive levels.*

[1] Computed for 7 Northern Plains States from data in *Farm Real Estate Situation*, U.S.D.A.

Four major types of controls have been suggested by Murray, Regan, Clarenbach, and others. These are (1) credit ceilings, (2) resale gains tax, (3) transfer tax, and (4) price ceilings and land purchase permits. Without trying to evaluate these as to acceptability or administrative feasibility the rest of this discussion will be devoted to the impact of these controls on the land market in the Northern Plains.[2]

The impact of credit ceilings has been determined by an analysis of 1,146 sales recorded in 11 Plains counties during the period January 1, 1942 to June 30, 1943. It was found that 50 percent of these sales were for cash, 32 percent cash and mortgage, and 18 percent by contract for deed. The buyer's equity in 29 percent of the 362 sales that involved mortgage financing was under 25 percent of the sale price, and in 46 percent of the cases it was from 26 to 50 percent of the sale price. If a credit limitation had been in effect limiting mortgages to 50 percent of value, then 75 percent of these transfers would have been affected (assuming sale price gives a measure of value for this analysis). Farmers buying to operate made up 72 percent of the buyers with equities less than 50 percent. This represented about 23 percent of the total farmer buyers.

One argument against credit restrictions is that it would favor other buyers over farmer buyers. The data show that about the same proportion of farmer and nonfarmer buyers would be affected by credit restrictions. If an exception were made so that farmers could borrow up to 75 percent of value, only 9 percent of the total farmer buyers would have been affected.

In addition to the contracts for deed, which made up the 18 percent of the recorded sales, there are a large number of these contracts that are not recorded. From such information as is available, it appears that most of the contracts for deed are to farmer buyers and that the equities are generally below 25 percent. This type of sale would have been practically eliminated with a credit limitation of 50 percent and largely eliminated even if farmers were permitted to obtain credit up to 75 percent.

The contract for deed has been used to sell land with a very low cash payment. In most states, the seller may recover the property without formal foreclosure proceedings in case the buyer defaults. Evidence exists that in some cases the favorable terms and low cash payment have been used to obtain a higher price for land. Many contracts contain no provision for transfer of title until all payments have been made. The buyer has little protection for his equity and, in case of failure to meet any annual payment, is at the mercy of the seller. This has special dangers in the Plains where income interruptions are frequent. If credit control were adopted, provision should be included to cover the terms of sales contracts.

If a *resale gains tax* had been in effect from October 1, 1940 to June 30, 1943, about ⅓ of 1 percent of the land in the Northern Plains states would have been affected. This would have varied considerably over the region. However, over 10 percent of the land has been sold once and would now be

[2] Data quoted are from unpublished studies by the Bureau of Agricultural Economics.

subject to the tax if sold again. Thus, it might be concluded that a resale gains tax effective on the second transfer after it was enacted would have little immediate direct effect on land sellers. The knowledge of such a tax would eliminate short-run speculation and deter all buyers to some extent. If a high resale gains tax were made effective on land transferred since October 1, 1940, it would tend to remove about 10 percent of the total land from the market. About three-fourths of the land transferred during this period was bought by farmers to operate. Consequently, making the resale gains tax retroactive to about the time that the war influence was showing up in land prices would be a penalty only on a small proportion of the buyers who purchased during this period.

A transfer tax of 20 percent has been suggested. Such a tax would have prevented many of the sales that were made during the last two years. The activity in the land market would have been reduced. If an exemption had been made for farmers who intended to operate the land, the impact of the tax would have been on the 25 percent of the land purchased by nonfarmers. Such a tax, with an exemption for buyers who intend to operate the farm, would probably eliminate most buyers who do not intend to operate.

Establishment of price ceilings and a land purchase permit system has been suggested to provide direct and complete control of the land market. Price ceilings would restrict the supply of land for sale and there would be several potential buyers for some tracts of land. Land purchase permits would be necessary to make price ceilings effective. If the demand by farmers continued at the rate shown during the last year, they would bid for a large proportion of the restricted supply of land that was for sale. If farmers were given first preference on land purchase permits, there would be a smaller amount of land available for purchase by nonfarm buyers.

County committees or boards have been suggested as one way of handling land purchase permits. In the average county in the Northern Plains a county board would have reviewed about 100 transfers during the past year. It has generally been suggested that price ceilings be set by appraisals made by a staff of expert appraisers. Another possibility would be to establish several *benchmark* farms in each county. The number would depend on local variations in land and type of farming. These farms could be carefully appraised in terms of normal values and their important characteristics stated. The county committee could then relate each land transfer to a *benchmark* farm and arrive at a relative value. The system of *benchmark* farms might well be established immediately as part of an educational program against land inflation.

Summary: This brief analysis indicates that a combination of credit control and one of the tax measures would have considerable effect on the land market and probably would prevent a sharp boom such as occurred after the last war. However, farmers bidding for land to operate and nonfarmers buying for investment might push land prices too high in relation to normal values. Apparently the only way to control such a development would be through price ceilings and land purchase permits.

DISCUSSION BY S. M. WATERS

Mortgage Bankers Association of America

In considering what legal measures might be adopted to prevent price inflation, we tend to overlook some of the major factors which make control desirable, practical or affective. The evil consequences which follow sharp increases in the sale price of properties and commodities fall with greatly differing effect upon the producer, the consumer and the public.

To forecast what good or bad effects are likely to follow artificial price control, we must consider the number of buyers or consumers that are necessarily effected by an unusual rise in price and the number of sellers or producers who are damaged by price collapse; also whether the properties or goods effected by the price control are necessities, which must be used or bought by all, or partake of the nature of luxury articles of limited market; also whether the articles, the price of which is sought to be controlled, are things for immediate consumption or to a greater or less extent consist of the means of production.

Price inflation of such staples as food and clothing effect all consumers and of course price deflation of these articles effect a great many producers. Rapid rise and fall in prices of these things is of vital interest to the public. However, in the case of highly specialized personal property articles, especially in the luxury class, the disturbance comes to only a few since trade in these things is not a necessity and public interests are little effected.

Real properties and certain articles of personal property which have long life, limited use and slow turnover, are of course commodities but in a larger sense they are likewise means of production and price inflation in these has but a secondary effect. Price deflation works harm only where the real property is bought on credit and where the increased price is not promptly written off.

Farm lands move slowly even in times of boom prices. Only a small percentage of farm lands change owners in any year. Not all of these sales are made on credit and only a percentage of those so made come to failure when farm land prices drop. Farm land price inflation, or rather the deflation that follows such price advance, affects only a small percentage of our people. It has not been suggested that the public is affected in any way except by some waste to the fertility of farm lands, due to unusual financial pressure and from the urge of Government relief from excessive farm indebtedness. As to these dangers, we have established, at great Government expense, a subsidized farm mortgage interest rate through the Federal Land Bank system and at like expense a direct Government farm loan agency in the office of the Land Bank Commissioner, empowered to make loans at a much greater percentage to value than experience has taught us is usually safe. These agencies bid fare to be perpetual. We also have a subsidized system of soil conservation benefits which has evidently become a permanent part of our agricultural program.

Persons effected by the collapse of a land boom are primarily those farmers who purchase on high prices and on credit, investors in farm mortgages and country banks who extend open or chattel credit. It is

these three groups which suffered considerable disaster following the last land price boom. No class of people could be more keenly aware of the dangers of land price inflation than these same farm mortgage investors, farm real estate dealers and country bankers. In spite of this, I think it is safe to assume that all of these groups would determinedly oppose any measure for control of farm land price inflation which would include either a system of "permits to buy" or a predetermined farm land valuation or an excessive special tax on profits from farm land sales.

It may be that there is a new crop of potential farmer speculators who do not have clearly in mind the lessons of the past but there is much evidence that the people who extend credit for the purchase of farm lands at advancing prices are keenly aware of the dangers.

Since an increased price of farm lands tends to follow the rise in price of farm products, it would seem logical to apply control measures to the price of the products themselves, rather than to the land which produces them, thus treating the cause rather than the effect. This, in spite of all of the difficulties involved.

Any system of "permits to buy" would involve a vast amount of machinery, very expensive of operation. Once set up, such a plan would tend to perpetuate itself long past the time when the need would have disappeared. Such a system would have political danger and would work an untold number of injustices. No county official nor committee could possibly administer such duty in fairness. Every agricultural county, of any considerable size, has, among its farmer, community groups bound together by relationship, farming methods, nationality or religion. These groups play an important part in the stability of land values and go a long way toward making farming a desirable calling. It is unthinkable that there could be put in the hands of any elected county official or administratively selected farmer committee the power to break up such communities of interest and incentive.

Any system for the pre-determination of farm land valuation would take years to complete and the figures would be out of date before the attempt had been in operation a year. It would put an unbearable burden upon the appraisal division of the Federal Land Bank system and could not possibly take into account the changes caused by improved methods of husbandry.

A plan for an excessive special tax upon the profits from the sale of farm lands would deprive farmers of one of the few incentives for farming as a business occupation. It would greatly retard progress in the making of those intangible improvements to farmsteads which are not easily estimated in cost but which have been repeatedly pointed out as highly desirable toward making farm life a pleasant as well as a profitable occupation.

My conclusion is that *if* a fair price ceiling on farm commodities cannot be fixed and maintained, making of course due allowance for the extra risks of price changes, where the produce is fed and therefore goes to market slowly, and also making some allowance for depreciation and depletion of the soil and improvements that took place in the years of depression, then there is no practical way to prevent a substantial rise of farm land value in these years of high return and probably a substantial drop when farm com-

modity prices fall. There is a parallel to this conclusion in the English Equity Law, expressed in the phrase 'damnum absque injuria." Broadly interpreted, it means that there are many evils for which there is no practical remedy.

DISCUSSION BY LIPPERT S. ELLIS

Bureau of Agricultural Economics

The need for some means of legal control over the prices at which land can be transferred appears to be justified on at least two counts. In the first place, such controls appear to be justified on a basis of the facts relating to the rise and decline of farm land prices during and after World War I. The story of how land prices rose from an index of 103 in 1914 (1912–14=100) to 170 in 1920 and then declined to an index of 73 in 1933,[1] together with the blasted hopes for a successful home and business on the farm and the struggle put up by thousands of farm families to hold their farms in the face of impossible carrying charges, is familiar to all who have given the matter any thought at all and needs no special emphasis at this time. The history of land prices and the accompanying conditions during that period should serve to remind us of the potential possibilities for great harm to numberless farm people if land prices are permitted to rise without limit.

The need for land price controls appears also to be justified on a basis of facts relating to the present situation. There is every indication that the prices of land will continue to rise. The price of farm land in eight sample counties in the South Central Region (Arkansas, Louisiana, Oklahoma, New Mexico, and Texas) has continued to rise rather steadily since 1941, and during the second quarter of 1943 the average per-acre-price of farm land rose in half of the counties, as compared to the prices received in the first quarter of 1943.[2]

In Quay County, New Mexico, where the greatest increases occurred, prices averaged 36 percent higher in the second quarter of 1943 than in the previous three months. Again there is every indication that the number of non-farmer buyers will continue to increase as it has in the past year or more. Twenty-four percent of the tracts changing hands in the eight sample counties during the second quarter of 1942 were purchased by non-farmers. Non-farmers purchased 35 percent of the tracts transferred in the same group of counties during the second quarter of 1943. So long as the income of non-farmers continues at present high levels, it may be safely assumed that relatively large numbers of them will turn to farm land as a place for the investment of excess funds.

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[1] The Farm Real Estate Situation, 1939–40, 1940–41 and 1941–42, M. M. Regan and A. R. Johnson, Circular No. 662, U. S. Department of Agri., Washington, D. C., No. 1942.

[2] All data relating to the land market situation in the South Central Region have been taken from unpublished material and quarterly reports on Farm Land Market Activity in the South Central Region prepared by Max M. Tharp, project leader for the land market activity study being conducted by the Bureau of Agricultural Economics in the South Central Region.

The proportion of farm real estate transactions which have been made for cash has shown a very desirable trend. During the first and second quarters of 1942, forty-six and thirty-four percent, respectively, of all transactions in the eight sample counties were for cash, while during the first and second quarters of 1943, forty-seven and fifty-five percent, respectively, of all transactions were for cash. This is an element of soundness in the situation and it is hoped that it will continue.

Other factors which will have a bearing on the farm real estate situation are beginning to make their appearance. Resales are beginning to appear more frequently and there is every reason to believe that this trend will continue. It is also interesting to note that the number of tracts which changed hands in the eight sample counties represented 13.4 percent of all farms over ten acres in size (all transfers of tracts of ten acres or less were excluded from the sample). These tracts represented 14.1 percent of the total acreage in farms over ten acres in size in the eight counties. While the use of junior liens has not reached an impressive figure, the practice does appear to be on the increase. In addition to these trends in the farm real estate market, it is likely that before much more time passes, farmers will begin to compete with each other for the best farms in the community. This developed into a very real factor in some sections after the first World War when farmers were attempting to secure a good farm for a son or son-in-law who was returning from the armed service and wanted to go into farming. This resulted in a bidding-up of the price of the best class of farms in many communities. Again, it must be remembered that the Federal and state governments are likely to be in the farm real estate market following the close of the war, in an effort to secure title to lands for allocation to returning soldiers under some farm settlement plan.

In the face of all of these factors, a passive attitude is unthinkable. The important and, of course, difficult problem is that of determining the type of controls to be used and the manner in which such control might be implemented. Legal controls offer one possibility. There are others who are much better able to discuss the details of such controls, but my personal judgment is that land prices cannot be effectively controlled without a resort to such means. This is based on the assumption that more general means of control, such as the control of commodity prices and taxation to take up the bulk of the excess purchasing power in the hands of the public arising from increased incomes and a reduced volume of consumer goods, will not be entirely successful in controlling the price of farm lands. Several possible legal means for the control of land prices have been advanced, but the most practical ones under present circumstances appear to be a control of credit and a resale or capital gains tax. It is recognized that these controls would probably give less positive control over land prices than other types of controls which might be established. These controls are favored over other types first, because of the relative ease of application and the apparent constitutionality, and second, because it appears that they would interfere least with certain desirable trends in the farm real estate market, such as cash sales, the practice of blocking up and improving the size of units, and sales by non-resident owners.

There is still another reason for the use of some type of legal control. Such means of control would form a foundation on which to build a more effective educational program than has been developed up to this time. Education on this subject should be pushed to the limit, even without legal controls, but it is believed that a program of legal control would serve as an incentive and a basis for a strong educational program. An educational program alone might well serve to call attention to possible speculative opportunities. Both together should therefore be much more effective than either one alone.

Taking the United States as a whole, the educational effort on the subject of farm land prices and the dangers of inflation has not been great. This is revealed by a study of replies received from 43 states in answer to a letter addressed to state extension directors in which they were asked the following three questions:

"1. To what extent has the subject of land values been included in your current extension program? This might include whether or not a definite assignment of this subject has been made to one or more of your staff members, the number of meetings held on the subject, and the titles of any publications which have been issued on the subject. If publications have been issued, we should appreciate receiving copies if they are available for distribution.
"2. What additional educational work might be done on this subject?
"3. Do you believe there is need for some type of land price control other than educational means in your state?"

The replies indicated that: in no state had there been a definite assignment of the subject of land values to a staff member; special meetings at which the subject of land values and the dangers of inflated land values were considered had been held in only five states; special publications dealing with the subject of land values and inflation had been issued in eleven states; materials relating to land values and related subjects had been presented in outlook and other farm meetings in twenty-two states; news stories were put out in twenty-one states; and the radio had been used in eight states for the purpose of informing the public with respect to the trend of land values and warning against the danger of inflated land prices. It was more difficult to analyze the answers relating to the use of legal means of controlling land values. Letters from two states indicated direct opposition to such means of control. It was clearly evident that legal means of control would be favored by a vast majority of the states if it becomes evident that there is likely to be a rapid rise in land values. A majority of those answering the question indicated they did not believe that the present situation in the land market warranted a resort to legal means of control.

It appears from these answers that there is room for a greatly expanded educational program designed to warn farmers of the dangers involved in inflated land prices and to indicate a wise course of action under present conditions. Such a program should be as positive as possible and should indicate ways in which surplus funds might be used. This might include the purchase of war bonds, the payment of debts, the accumulation of cash reserves to be used in financing production, and for the making of farm and home improvements after the war. Such an educational program would, likewise, include a discussion of sound appraisal procedure so that farmers

might have a basis for determining when land prices were too high, in addition to dealing with the consequences of inflation and deflation.

It seems clear that land prices cannot be controlled by an educational program alone, but in spite of that, a well-planned educational program should be prosecuted to the limit of available personnel resources. On a basis of experience thus far in the price control program, it seems equally clear that legal means of controlling land prices are not likely to be most successful unless they are accompanied by a thorough-going educational program. Such a program would inform the public as to the need for controls and the manner in which the legal controls are to function as well as the dangers involved in the inflation and possible later deflation in land values.

DISCUSSION BY C. H. HAMMAR

University of Missouri

For an enlarged report of this discussion see A Reaction to Land Value Control Proposals by C. H. Hammar in this JOURNAL, November 1943.

MINUTES OF THE MEETING OF THE EXECUTIVE COMMITTEE, AMERICAN FARM ECONOMIC ASSOCIATION

HAMILTON HOTEL, Washington, D. C., January 21 and 22, 1944

Members present:

S. E. Johnson, Presiding
M. R. Benedict
Eric Englund, President-elect
Asher Hobson
H. B. Price
G. S. Wehrwein

Conrad Hammar and H. R. Wellman were unable to attend.

Report of The Election Tellers

We, the undersigned election tellers, advise that we have tabulated the ballots cast for the election of the Association's officers for the year 1944. The results are as follows:

President	Eric Englund
Vice-president	Karl Brandt
Vice-President	Garnet W. Forster
Secretary-Treasurer	Asher Hobson

Respectfully submitted,
(Signed) A. A. DOWELL
G. A. POND
W. L. CAVERT

Report of the President—1943

For the second time during this war period the Association has had to forego its annual meeting. This places a serious limitation on the services that the Association can render to the Nation and to its membership, since such a meeting furnishes the only opportunity for the entire group to meet for discussion of economic problems. Contacts with members of other Associations are also a valuable part of the annual meeting. It is difficult to substitute for the stimulation of personal contacts with professional associates from other institutions. This is especially true for workers who do not have many opportunities for travel and for outside professional contacts.

Early in 1943 considerable support developed for a meeting in

the Mississippi Valley region as a partial substitute for an annual meeting, and it was felt that it would be worth while to experiment with one such meeting in 1943. The regional meeting held in St. Louis on September 15 and 16, attracted a large attendance and seemed to justify continuance of this experiment, at least as long as a national meeting cannot be held. Regional meetings involve less travel on the part of participants, and the smaller attendance can be accommodated without congestion of hotel facilities. Attention can be centered on problems of wartime importance in the particular region. It seems worth while to explore the sentiment for such meetings in the Northeast and the Southeast for the year 1944; as well as for continuance in the Mississippi Valley region. The Western Farm Economic Association held its meeting as usual in 1943, and will probably continue to do so in 1944. Regional meetings are not complete substitutes for a national meeting where problems of wider interest can be more fully covered. If it is at all feasible to do so, a national meeting should be held.

It is difficult to arrange effective programs for wartime meetings because of the time required for preparation of papers. Experience at the St. Louis meeting indicates that it might be desirable to have fewer papers and to concentrate more on informal discussion.

Although it is important for the Association to consider the means by which it can best serve the Nation and its membership in wartime, the time is here when it is equally important to consider the type of service it can render in the postwar period, especially in the years of transition from war to peace which are likely to involve tremendous adjustments in American agriculture. The period immediately following the first World War was one of rapid growth and development for the Association. It furnished media for contributions by economists to an understanding of the economic forces that affected agriculture so adversely in the aftermath of the last war. Such understanding is the prerequisite for intelligent action. The Association also furnished an outlet for reporting on new developments in research methodology, and in other ways encouraged improvement of scholarship in agricultural economics. The excellent work carried on by the Association at that time has been continued even under the handicaps of severe depression, and more recently, the war. What follows, therefore, is no reflection on the past activities of the Association, but rather an attempt to visualize even greater opportunities.

The field of agricultural economics has grown tremendously since World War I, both in number of workers and the types of activity in which they are engaged. If this Association is to continue to furnish professional leadership in the entire field, it will be necessary to broaden the scope of its activities and attract a much larger membership. Although Association membership has increased over the years and has shown a gratifying stability during this war period, we probably are attracting a much smaller percentage of working economists today than we did in the 1920's. As one means of attracting and holding a larger membership, the Secretary-Treasurer might consider the appointment of a membership advisory committee comparable to the Editor's Editorial Council. Members of such a committee might be selected in such a way that membership representatives would be located in areas with relatively large potential membership.

Agricultural economists must carry important responsibilities in the period of transition from war to peace. The professional Association representing this important group has an obligation for leadership along the lines of its main objectives, " . . . to promote effective investigation and free discussion of topics and issues in agricultural economics, and higher standards of accomplishment in research, teaching, and extension in this field, by fostering study, writing, and contacts which contribute to these ends." To carry out these objectives effectively, we need to develop a program of sufficient content and stimulation to attract a much larger membership—among the agricultural economists who are coming back from the military services, among those now working in this field, and also among the young men and women who are preparing themselves for work in agricultural economics.

Prospective members will ask penetrating questions concerning the activities of the Association. Some will put it bluntly: "What benefit can I receive from membership?" Can we then say that membership will help them to render greater service in their chosen field, and that it will improve their professional standing? That the pages of the JOURNAL provide an opportunity for members to express their own views on all economic problems of agriculture as long as they adhere to the usual standards of professional competence? That the meetings of the Association provide a forum for free discussion of all viewpoints on economic problems? That the Association furnishes an outlet for publication of original contribu-

tions in the field of agricultural economics—contributions to method and theory as well as factual presentations of general interest? That the Association assumes leadership in promoting and facilitating graduate study? That it has a specific program for encouraging outstanding research in agricultural economics, and that it supports a well defined policy on freedom of inquiry and freedom of expression in this field?

With a vigorous program covering a wide field of interests, both at official meetings and in its publications, it should be possible to double the membership when the war is over. With a larger membership, we could afford to publish more material and, at the same time, provide some compensation for the editorial and secretarial work. Both in meetings and in the pages of the JOURNAL, it seems desirable to encourage material of interest for those who have administrative and program-making responsibilities; also more material for extension workers and for those who are engaged in professional farm management and marketing activities. International problems are coming to the forefront and will need to be represented much more than in the past.

As much encouragement as possible should be given to graduate training, especially to completion of work by those who have been caught midstream in their training program by the war emergency. Our 1943 Committee on Training in Agricultural Economics is making recommendations which should be followed up in an attempt to obtain specific aid for workers interested in completing graduate training.

The possibilities of providing in-service training for the more mature workers should be fully explored—training especially designed for those who have already completed their graduate work or for those who cannot get away for graduate study over an extended period. Intensive short courses on certain subjects (for example, new developments in statistical methods, and new developments in economic theory of importance to agricultural economists) might be developed in cooperation with some of our educational institutions. Summer short courses of this type might run for only two-weeks periods. Some of the intensive training programs now carried on by the military services indicate possibilities along these lines. If the institutions cooperating in this type of work were so located that the time spent in short course work could be partially utilized as vacation for the families of the participants, it might result in

larger attendance. It is also desirable that short courses of this type be distributed regionally in such a way as to attract workers from all parts of the country.

Perhaps Association experience with regional meetings will justify their continuance in the postwar period. Two-day regional meetings might be held in the summertime at an educational institution in each region immediately preceding an intensive short course for those who can stay over a longer period. These activities might also help to stimulate increased membership in the Association.

The Association should consider ways and means of developing a specific program for encouraging the development of new research techniques and other outstanding research contributions in the field. Definite recognition of such contributions will furnish additional stimulation to the younger professional workers. The work of the 1943 Committee on Medals and Awards should be followed with specific attempts to obtain funds for making financial awards for outstanding research contributions. A suggestion also has been made that trial be given to a scheme of membership balloting each year on the outstanding paper published in the four preceding issues of the JOURNAL. Announcement might then be made of the three highest ranking papers. This suggestion has the merit of low cost and might be worked out in such a way that it would result in submittal of more and better papers.

Some of the problems and opportunities which the Association faces in the postwar period seem of sufficient importance to merit the development of a detailed outline of Association postwar policy. Perhaps a committee on postwar policy should be appointed which would work closely with the officers of the Association and with other members in developing a report for later consideration by the entire membership.

(Signed) SHERMAN E. JOHNSON, *President*

Received by the Executive Committee and recommended for publication in the JOURNAL.

Report of the Secretary-Treasurer

For the Fiscal Year Ending November 30, 1943

Membership: As of November 30, 1943, the membership of the Association was larger than at the close of the last fiscal year. Total

membership was 1,117, an increase of 90 over that of a year ago. The following tabulation gives the comparison by groups.

Classes	*Nov. 30/43*	*Nov. 30/42*	*Increase or Decrease*
Individuals	806	707	+99
Junior Members	23	41	−18
U. S. Libraries & Firms	214	202	+12
Foreign Libraries	74	77	− 3
Totals	1,117	1,027	+90

The greatest increase is that of individuals. This is largely due to the personal efforts of Mr. S. W. Mendum of Washington, D. C. in furthering the interests of the Association among agricultural economic workers stationed in Washington. The largest decline is among Junior members. This is to be expected because of the drastic drop in graduate enrollments. Fourteen of the Junior membership crop of 1942 became Senior members in February 1943.

It is encouraging to know that membership numbers can, in all probability, be sustained at around present levels during the period of emergency.

The American Library Association continued its policy established in 1941 of purchasing 35 annual sets of the issues of the JOURNAL OF FARM ECONOMICS to be held by the Association for distribution in foreign countries after the war.

Finances: The Association ended the year with a balance of $3,074.67 which was slightly higher than that of last year. Operating expenses were somewhat less, and non-operating income was somewhat higher this year than last. While the expenses incident to the holding of the annual meeting were not incurred, this savings was largely offset by the expenses of assembling the Executive Committee in Chicago in January 1943, and in holding the Mississippi Valley Meeting in St. Louis in September.

The operating and financial statements for 1943 as compared to 1942 are given below.

OPERATING STATEMENT
THE AMERICAN FARM ECONOMIC ASSOCIATION
Year Ending November 30, 1943

		1943	1942
Operating Income			
Receipts from dues	$5,650.26		
Back numbers sold	104.15		
Reprints sold	101.22		
Advertising sold	150.00		
		$ 6,005.63	$ 6,095.03

Operating Expense				
JOURNAL OF FARM ECONOMICS				
Vol. XXV, 4 issues.....	$3,536.56			
4 reprints...	382.98			
			$3,919.54	$ 4,102.50
Clerical & Editorial Expenses.....	227.63			
Chicago Executive Committee Meeting.....	126.34			
St. Louis Meeting.....	127.00			
Postage.....	130.35			
Back Numbers Purchased.	77.00			
Office Supplies.....	52.40			
Ballots, 1942.....	14.50			
Surety Bond & Safety Deposit Box.....	21.70			
		$ 776.92		
			$ 4,696.46	$ 4,820.68
Excess Receipts above Operating Expense.....			$ 1,309.17	$ 1,274.35
Plus Non-Operating Income				
Dividends and Interest, Stocks & Bonds	$1,764.58			
Accrued Interest, Savings Account.....	.92			
			$ 1,765.50	$ 1,544.78
Total Excess, Receipts above Expenses.....			$ 3,074.67	$ 2,819.13

FINANCIAL STATEMENT
THE AMERICAN FARM ECONOMIC ASSOCIATION
December 1, 1943

Assets				
Cash, Bank Balance.....	$ 1,228.88			
Stocks, Market Value.....	24,642.00			
U. S. Series D Bonds, Market Value..	1,215.00			
U. S. Series G Bonds, Cost.....	8,500.00			
Savings Account.....	124.54			
			$35,710.42	$28,325.63
Proprietary Interest				
Net worth December 1, 1942.....	$28,325.63			
Plus net returns for Year				
Operating.....	1,309.17			
Non-Operating.....	1,765.50			
Net increase in Market Value of Stocks & Bonds.....	4,310.12			
Total Net Worth.....			$35,710.42	$28,325.63

Investments: The market value as of November 30, 1943, of stocks owned by the Association was $24,642.00. The bonds, consisting wholly of Government Defense issues amounted to $9,715.00. These, together with $1,353.42 in cash, gives the Association a total net worth of $35,710.42.

A detailed report on the Association's security holdings has been submitted by the Investment Policy Committee to the Executive Committee.

Respectfully submitted,
(Signed) ASHER HOBSON, *Secretary-Treasurer*

Received by the Executive Committee and recommended for publication in the JOURNAL.

Report of the Auditor

In accordance with your request, I have examined the accounts of the Secretary-Treasurer of the American Farm Economic Association for the year ending November 30, 1943. All of the entries in the accounts were checked against supporting vouchers and found to be in agreement. The assets of the Association were confirmed by an examination of the bank statements and by checking the securities owned by the Association.

I certify that the books have been correctly and carefully kept and that the financial statement of the Secretary-Treasurer reflects accurately the financial transactions and the financial condition of the American Farm Economic Association.

Respectfully submitted,
(Signed) WALTER H. EBLING

Received by the Executive Committee and recommended for publication in the JOURNAL.

Report of the Editor

The publication of the JOURNAL during the past year has been notable for the various impacts of the war on editorial policy. Rationing of book paper was instituted early in the year. Since the quota was based on use of paper in 1942, the size of the JOURNAL for 1943 was not affected. In fact, since the number of copies of the JOURNAL was smaller than in 1942, it was not necessary to use the entire paper quota. Members of the Association have been distinctly less able to give the Editorial Office the assistance customarily asked of them because of other duties. Mails were slower and printing encountered interruptions. These and other developments increased the work of the Editorial Staff and enhanced the difficulties of maintaining the customary standards of quality and service of the JOURNAL.

Volume XXV has 968 pages. This size compares favorably with

that of recent years. Of the total, 723 pages were devoted to articles and discussions, 78 pages to notes, 72 pages to reviews, 26 pages to news items, 20 pages to exchange advertising, and 6 pages to paid advertising. Names added to the Honor Roll of agricultural economists reported as having joined the armed services were 149 as compared with 152 names added in 1942.

PRINTED MATERIALS IN JOURNAL OF FARM ECONOMICS
VOLUME XXV, 1943 (PAGES)

Issue	Articles including discussions	Notes	Reviews	News items	Exchange adv.	Paid adv.	Other	Total
February	351	—	—	—	5	1	21	378
May	120	23	25	10	5	2	3	188
August	126	34	29	9	5	1	6	210
November	126	21	18	7	5	2	13	192
Total	723	78	72	26	20	6	43	968
Percent	74.7	8.1	7.4	2.7	2.1	.6	4.4	100.0

Acknowledgment is made of the friendly cooperation and assistance of contributors, members of the Editorial Council and the Editorial Staff. I wish especially to acknowledge the contribution of President Johnson and the Program Committee in planning the material for the February, 1944, issue of the JOURNAL. In the absence of an annual meeting of the Association, special plans were required to provide the material that could be used in lieu of the proceedings customarily published in this issue of the JOURNAL. This assistance of Dr. Johnson and the other members of the Program Committee filled a timely need.

Uncertainty will stalk the Editor in 1944. Paper quotas promise to be the same as in 1943, but will they be maintained? Will voluntary contributions be adequate, or will special effort be necessary to secure material for publication? Will costs of publication continue to rise and income continue to fall? These and other problems will call for an editorial policy that is quickly adaptable to changing conditions.

(Signed) H. B. PRICE, *Editor*

Received by the Executive Committee and recommended for publication in the JOURNAL.

Committee on Training in Agricultural Economics

In transmitting the following report, it is recognized that proposals are being made to Congress to provide educational opportunities to persons now in military service. With the increased part the United States may be expected to take in International relationships there arises increased need for encouraging well qualified students to take graduate training in agricultural economics which it is believed, should be facilitated by carrying out the recommendations of your committee. In placing the emphasis upon graduate training for ex-service persons your committee has no desire to minimize the importance of grants-in-aid for agricultural economics research to persons other than those who were members of the armed forces.

The Personnel Situation

The demand for workers trained in the rural social science fields for administrative, research, teaching, and extension positions has been so great in recent years that it has encouraged too many partially trained students to drop graduate study in order to accept fulltime positions. This, together with entrance of students and research workers into the armed services has led to a rapid turnover which has interrupted the completion of many pieces of research at most institutions. The war has led likewise to such pressing demand for help with current problems of a service nature that more basic and longer-run research has been greatly curtailed. The combination of inadequate graduate training, the rapid turnover in personnel, the lack of completion of initiated research work, the retarding of new research, and the postponed training of new personnel which has developed particularly during the war period means a depletion of adequately trained workers in the various fields of rural social science which will need recruiting to full strength to meet prospective demands in the postwar period.

Since recent demands have drawn many promising students into federal agencies, it is desirable that outstanding individuals return for the completion of their graduate training and the eventual strengthening of college teaching, research, and extension positions.

Need for Graduate Scholarships and Fellowships

In view of the existing situation relative to the need for more thorough training for the personnel in the field of agricultural

economics, and the need for new personnel your committee makes the following recommendation:

The Executive Committee of the American Farm Economic Association should take steps to secure the cooperation of the General Education Board and other agencies in establishing suitable scholarships and fellowships for graduate training in the field of agricultural economics.

Scholarships and fellowships may well be established to provide assistance in such training for at least 50 persons a year in the period immediately following the close of the war, with due recognition for their distribution among different fields of work within agricultural economics and among different major institutions offering graduate training. These fellowships should be established on such a basis as to place a premium on the promise for development of the student and on his previous training, both at undergraduate and graduate levels. Major consideration should be given to scholarships and fellowships to aid in completing the graduate training of students who have had their training interrupted by service in the armed forces rather than to provide additional training of those who have already completed the Ph.D. degree. Assistance to candidates just entering graduate study should be limited to those who have completed suitable undergraduate preparation with marked indication of promise for future growth.

Undergraduate Preparation for Agricultural Economics Work

Large numbers of persons now in military service will seek to continue their education at the close of the war. In preparing students to serve professionally in agricultural economics either in fulltime positions or as graduate students, it is recommended that only those students having a sufficient background of preparation and showing a high degree of academic promise should be encouraged to continue in or to train for this field of work. In agricultural economics it is important that training develops an understanding of basic principles and the ability to employ such training in analysis and reasoning in working out solutions to new problems. This calls for care and discretion in discovering, encouraging, and directing men with appropriate qualifications for graduate study. The program of training should be sufficiently rigorous to eliminate those whose native ability, temperament, and understanding of agriculture and agricultural people make it inadvisable for them to enter this field of endeavor. This imposes responsibilities on the advisers

of graduate students and upon examining committees passing upon the work of the student.

Training at the undergraduate level should place emphasis upon providing an adequate broad preparation in technical agriculture and in social sciences and include certain subjects designed to give the student adequate preparation in self-expression and supplemental courses designed for his mental and physical development. In general, it is recommended that the undergraduate student, expecting to devote his life to work in agricultural economics, should give an adequate portion of his time to technical agricultural courses covering a broad scope of agricultural training with the necessary supporting courses in the fields of natural and social science including mathematics, economics, and sociology, in addition to courses in agricultural economics and rural sociology. He should have adequate training in the fields of verbal expression, historical study of civilization, and foreign language. Foreign language is recommended especially for students preparing for graduate study or foreign service in the agricultural economic field.

Graduate Training in Agricultural Economics

Training at the graduate level should include a sufficiently wide range of basic courses to give the student an opportunity to obtain a thorough grounding in fundamentals and an adequate foundation for future growth and self development. The qualifications of the personnel in charge of the courses are more important than an imposing array of course offerings in the catalog. Regardless of the amount of training the student expects to take as a graduate student, he should be thoroughly grounded in economic principles and statistical methods as well as in applied specialized courses. The schedule of training should be so adjusted that some basic work in economic theory and statistical method will precede most of the applied courses so that the fundamentals may be used in directing the analysis of problems in the applied courses although highly advanced courses in either economic theory or statistical method may contribute most to a student if taken near the end of his academic training. This requires a close self-study by the institutions proposing to offer graduate training in order that they may not render a dis-service to the candidate for advanced training by offering him an insufficiently broad background of preparation for his field of study.

Those directing graduate study need to help students analyze

their particular needs for well-rounded mature development. Attention may need to be given to non-credit elementary courses needed to help students overcome deficiencies; graduate courses in closely related fields including rural sociology, government, economic geography, business organization and operation, and mathematics; courses with outstanding teachers even if it makes it necessary for a student to attend more than one institution; or a student securing interim field or research experience before completing graduate preparation.

Committee Members
F. F. HILL
A. C. HOFFMAN
O. B. JESNESS
T. W. SCHULTZ
H. C. M. CASE, *Chairman*

Received by the Executive Committee and recommended for publication in the JOURNAL.

Report of the Committee on Awards and Prizes

The committee concludes that a modest type of award for especially meritorious published work in the English language in the field of Agricultural Economics would stimulate offerings for publication and improve the quality of research in this field.

Members of Committee
J. I. FALCONER
O. B. JESNESS
C. L. STEWART

It is recommended by the Executive Committee, that a modest beginning in this direction, on an experimental basis, be made by granting some type of recognition for the best article, or articles appearing in the JOURNAL OF FARM ECONOMICS during a calendar year.

Report of the Land Market Committee

The Land Market Committee of the Association was reconstituted in May, 1943 with the following membership: Joseph Ackerman, E. C. Johnson, Mark Regan, S. W. Warren, and W. G. Murray. Each of the committee members has taken an active part in preparing material and attending meetings and conferences dealing with the land boom situation. The committee was represented at a Corn-Belt Conference on land values held in Des Moines in

August. A discussion of the current land market situation was given an important place in the program of the regional meeting of the Association at St. Louis in September.

Questions relating to land boom controls and land prices were given a prominent place on the program of the American Society of Farm Managers and Rural Appraisers in Chicago in November. Numerous pamphlets and articles on the current real estate market have been prepared by individual committee members since the committee was appointed. The dangers of a land boom have been subjected to careful study and numerous control measures have been suggested, not by the committee, but by individual members of the committee on their own responsibility. The committee as a whole is endeavoring to obtain widespread interest, discussion, and publicity on land market problems and their solution.

Respectfully submitted,

(Signed) WILLIAM G. MURRAY, *Chairman*

Received by the Executive Committee and recommended for publication in the JOURNAL.

Executive Committee Action

In order to furnish transfer officers of corporations with the necessary evidence that the Secretary-Treasurer is authorized to transfer securities in the name of the Association, the following resolution was adopted.

"RESOLVED, that the Secretary-Treasurer, who is also chairman of the Investment Policy Committee, be and is hereby authorized and empowered, for, and in the name and on behalf of this Association to take any and all such steps, and to do any and all such things, as may be necessary, required, and appropriate for, or in connection with, the purchase, acquisition, acceptance, handling, pledging, sale, or other disposition of stocks, bonds, and other securities belonging to the Association or pertaining to its business, including the execution and delivery for and in the name and on behalf of this Association, of any and all endorsements, transfers and assignments of certificates of stocks, bonds or other securities standing in the name of this Association, either for the purpose of sale or transfer, and all such other steps and action as may be necessary or proper in connection therewith."

H. B. Price was appointed editor of the JOURNAL OF FARM ECONOMICS for the year 1944.

Warren C. Waite was appointed as the Association's representative to serve as a member of the Board of Directors of The National Bureau of Economic Research, for the term expiring with the annual meeting of 1948. Mr. Waite succeeds W. I. Myers resigned.

The Executive Committee voted to continue Junior Membership status to those joining the armed forces who were Junior members at the time of joining the armed forces, and for the length of their full time connection with the military forces. This status grants full membership priviledges at the reduced rate of $3.00 per year.

The Executive Committee expresses the hope that it will be in keeping with public policy to resume holding of the annual meetings. In case the holding of an annual meeting in 1944 does not seem feasible, the committee recommends the serious consideration of a regional meeting, or meetings in 1944.

The Executive Committee considered at length the question of freedom of scientific investigation, discussion and publication. Plans were formulated for the early preparation and publication of a declaration of policy on this question.